ENGINEERING NEWS-RECORD

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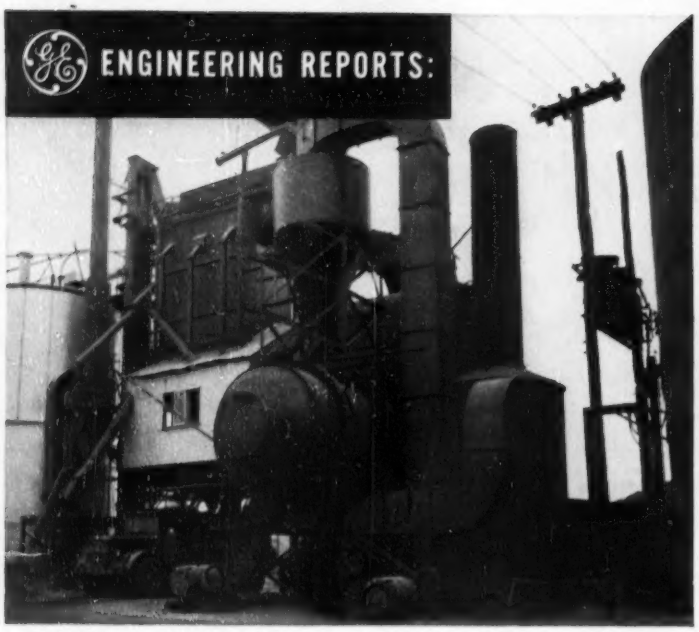
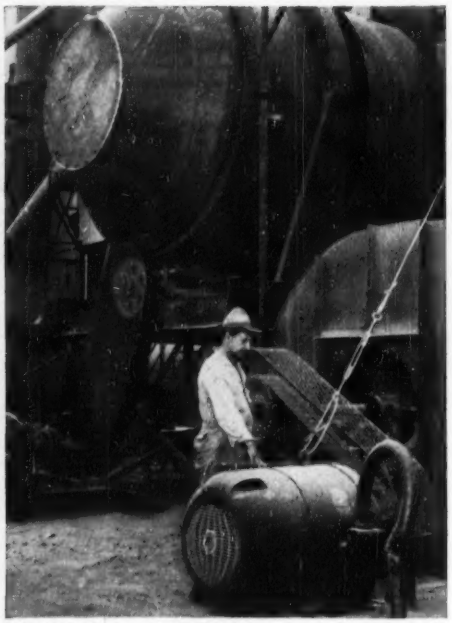


G-E SERVICE is quickly available to any Simplicity-built plant. An asphalt plant must be dependable above all—no G-E motor has failed in this Triboro Asphalt Co., Flushing, N. Y., installation since its construction in 1949.



ECONOMICAL OPERATION is one advantage of using General Electric drives. This 100-hp G-E motor operates main dust blower at Triboro.

Large asphalt-plant builder standardizes on General Electric equipment for dependability

G-E motors and controls help maintain continuous high output at Simplicity-built plants

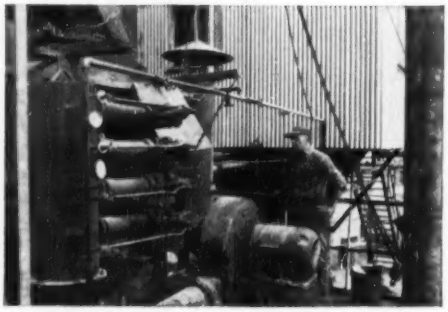
The Simplicity System Co. of Chattanooga, Tenn., has used General Electric motors and controls since they first electrified this type of asphalt plant. W. C. West, Simplicity general manager, says "We not only feel G-E apparatus is the most dependable of any available, but for years we've been highly pleased with G-E service."

Reliable, flexible motors are required for these applications. Simplicity-built plants are often remotely located at the end of utility lines or where power availability is low. Drive motors are subjected to very high starting torques. Even a one-hour shutdown can cost more than a thousand dollars in lost production alone. Because of these conditions, G-E motors designed to operate under high starting torques and low starting currents were selected after Simplicity ran a series of tests for various applications, in co-operation with G-E engineers.

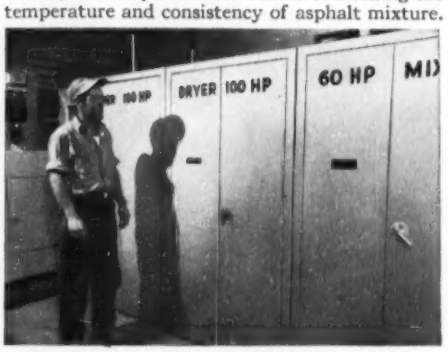
Your construction equipment will gain in dependability and efficiency too, when you electrify with G-E drives and power distribution equipment. They're backed by G-E engineering help in application, installation and service, available through any G-E Apparatus Sales Office, or by writing General Electric Co., Section 664-33, Schenectady, N. Y.

Engineered Electrical Systems for Heavy Construction

GENERAL ELECTRIC



DEPENDABILITY is built into this 25-hp G-E motor, which operates the burner controlling the temperature and consistency of asphalt mixture.



CENTRALIZED G-E CONTROL PANELS are factory assembled and system-wired; they provide safer control for all motors in a Simplicity plant.

ON THE NEWS FRONT WITH STRUCTURAL STEEL

Law School

University of California — the Hastings College of Law, San Francisco

The Law Department of the University of California is housed in this attractive building containing 52,000 square feet of usable floor space. Facilities include classrooms, model courtroom, library, offices and a landscaped, floodlit forecourt. The building was built on a frame of Bethlehem structural shapes. The steel girders, reinforced with steel plates, measure 39 in. over the full span of 60 ft. The windows have sun baffles to shield the interior from glare. *Architect:* Masten and Hurd, San Francisco. *General Contractor:* Monson Bros., San Francisco. *Steel Fabricator and Erector:* Judson Pacific Murphy Co., Emeryville, Calif. *Structural Engineers:* Huber and Knapik, San Francisco.

Field House

Deuel Vocational Institution, Tracy, Calif.

This attractive field house and completely-equipped gymnasium serves the Deuel Vocational Institution, operated by the State of California's Department of Correction for the rehabilitation of youthful male offenders. The building is 288 ft long, 118 ft wide and measures 39 ft from floor to ceiling at midpoint. Bethlehem structural shapes were used in building the field house. As shown in the picture, the structural members provided a pitched roof, rounded at both ends, and spanned the 118 ft width without additional support. *Architects:* Division of Architecture, State of Calif. *General Contractor:* Johnson Drake and Piper, Inc., Oakland, California. *Steel Fabricator and Erector:* Herrick Iron Works, Oakland, California.

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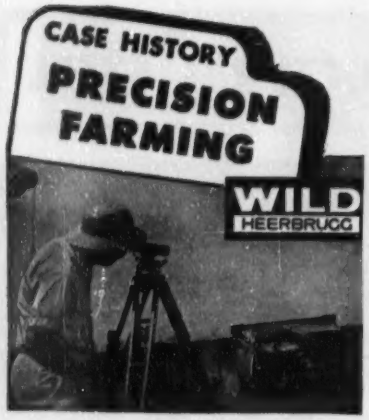

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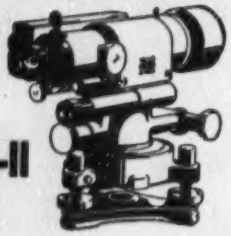

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Washington - REpublic 7-6630

Number of copies of this issue printed 65,448

CONTENTS ON PAGE 11

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Robert F. Boger

Publisher

December 23, 1954 ENGINEERING NEWS-RECORD Vol. 153, No. 26

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**
Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.
Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.
Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.
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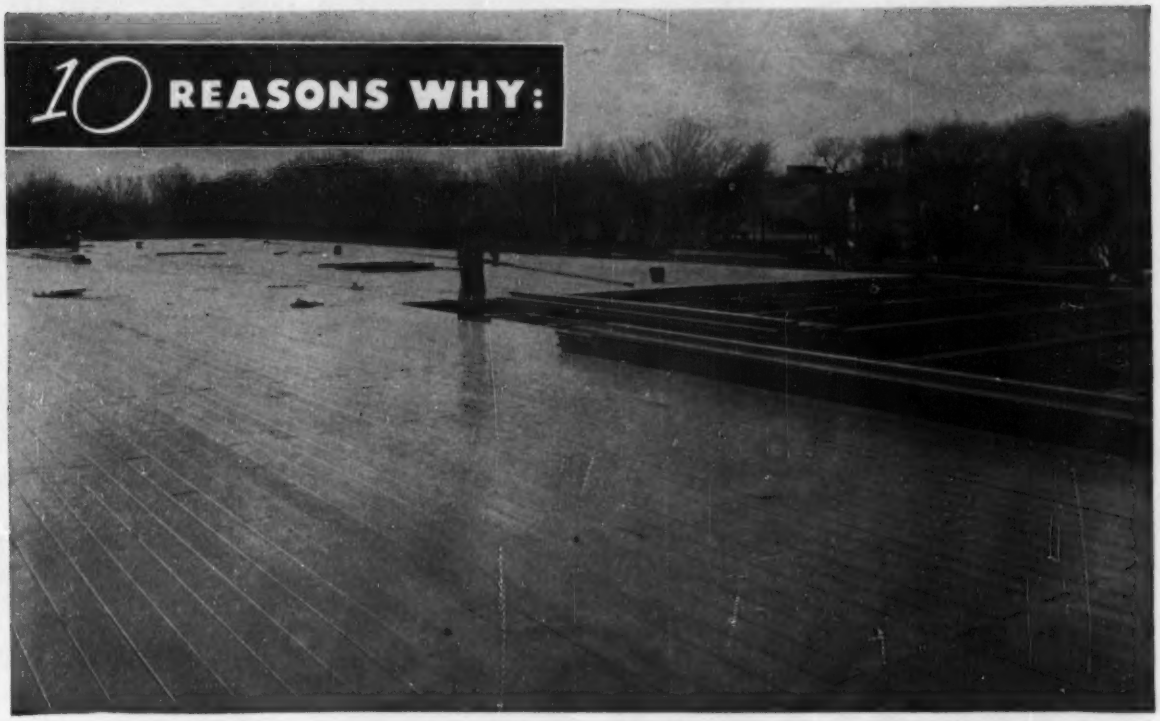

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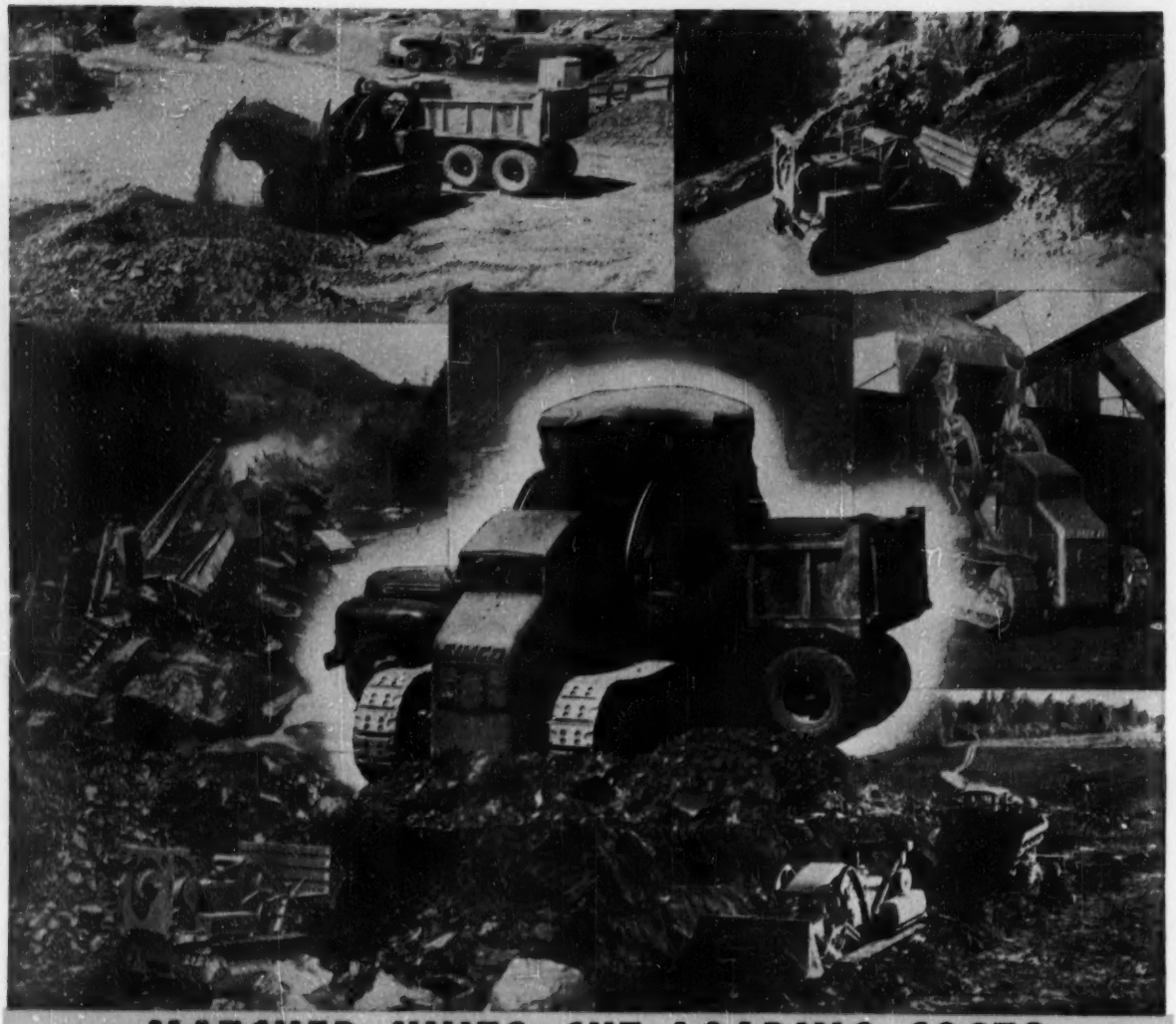

MATCHED UNITS CUT LOADING COSTS

Eimco 105 Tractors designed to take Eimco loading-excavating attachments provide unbeatable performance in fast, economical loading.

Attachments mounted on conventional tractors cause overloads beyond the designed strength of crawler type equipment, but Eimco 105's are designed and built to take the extra load and vertical thrusts of these attachments. That is why you never hear an Eimco owner talk about track trouble, roller trouble or front idler trouble — the extra strength is built into the machine.

Matched tractor and loader-excavator attachment, both made by Eimco, will dig and load rough material, faster at less cost.

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Eimco 105

Eimco 105 with bulldozer attachment

B.F.Goodrich

All-nylon tires end tire failures for rock products company

TRACY Rock and Gravel Company trucks are scheduled to make the round trip between quarry and crusher in 8 minutes. Such close timing is necessary so that this Tracy, Calif., firm can keep its output up to the demands of the construction industry. Setting the pace is one thing, maintaining it another.

Tires broke and treads separated under 30-ton payloads. Some tires lasted only 100 hours. Valuable time was lost. Maintenance costs soared. But B. F. Goodrich *all-nylon* tires solved these serious problems, Chief Mechanic W. S. Floyd reports. After 2 years on the job, "they've never been off the rims!"

Nylon is stronger than ordinary cord materials, can withstand double the impact. *All-nylon* tires last far, far longer, put an end to premature tire failures.

Tracy uses *all-nylon* Super Traction tires because the wide tread gives greater flotation. The *all-nylon* Universal tread gives full traction in forward or reverse. And the *all-nylon* Rock Logger tire resists rock cuts.

All B. F. Goodrich Rock Logger and Universal tires (sizes 12.00 and larger) are made in *all-nylon* construction. Smaller sizes in *all-nylon* or rayon. See your B. F. Goodrich retailer today. His address is listed under Tires in the Yellow Pages of your phone book. Or write *The B. F. Goodrich Company, Tire & Equipment Division, Akron 18, Ohio.*

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ALL-NYLON SUPER TRACTION tires pull through grueling time schedule under 41-ton gross weight.

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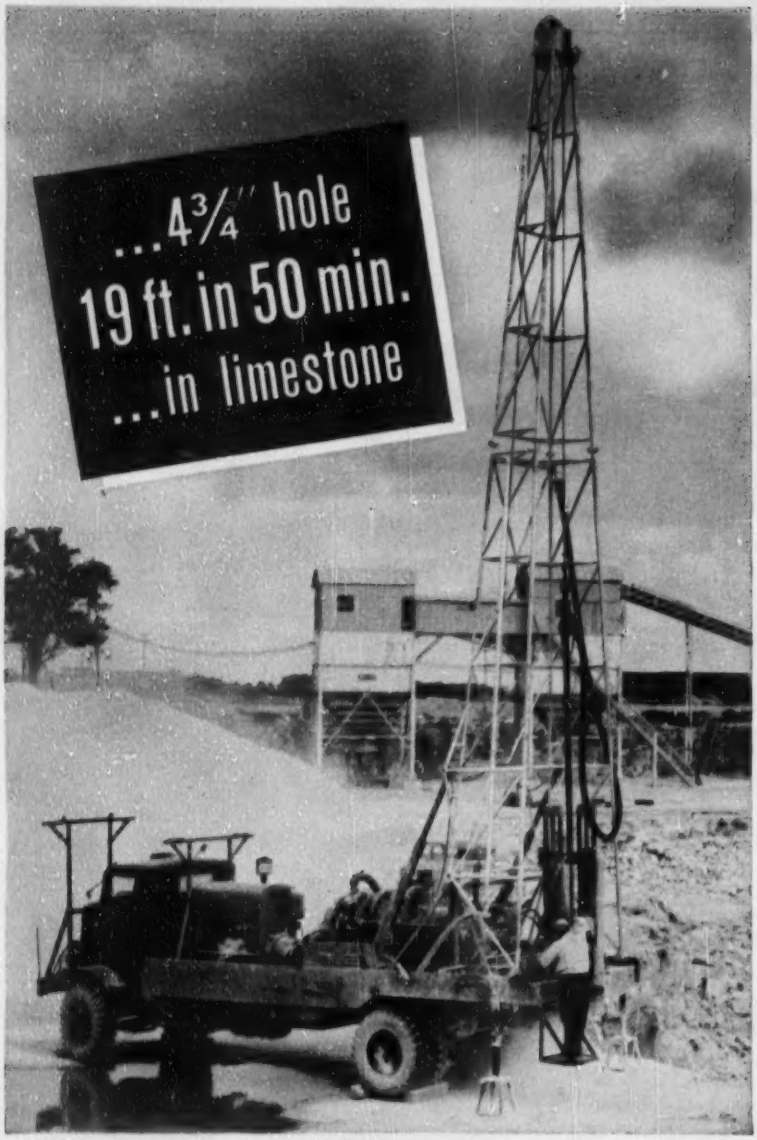
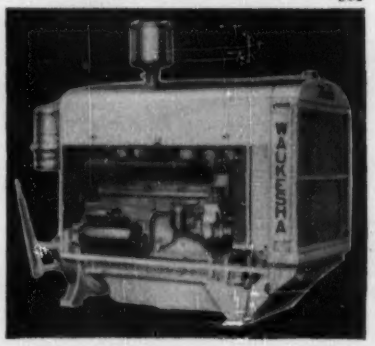


WAUKESHA Diesel

Model 135-DKU — six cylinders, 4¼ x 5-in., 115 hp at 2000 rpm, max.

263

● Quality Limestone Products, Inc., Sussex, Wis., drill a 4¾-inch hole to 19 ft. in 50 minutes, in limestone, with their Waukesha Diesel powered Joy Model 225 rotary blast hole drill with hydraulic feed. This high performance Diesel is an overhead valve, dry sleeve cylinder unit, with patented spherical combustion chamber. Clean burning and smooth running in all speed ranges. *Send for Bulletin 1574.*



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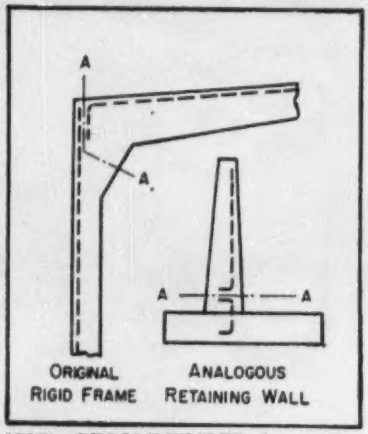
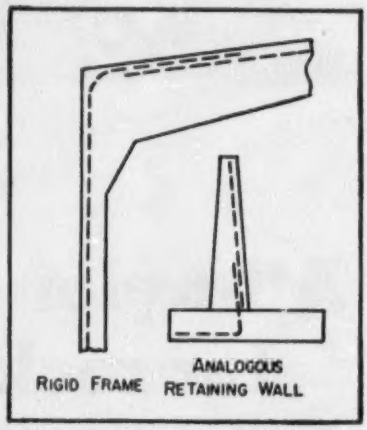


NOT RECOMMENDED—bar splices that allow a section of plain concrete A–A to exist.



GOOD PRACTICE in making splices—all sections are reinforced.

Bar splices compared

SIR: In the concrete rigid frame that failed (ENR Nov. 11, p. 36), the original reinforcement details and placement relied on a plane of plain concrete to transfer tension from the bent horizontal bars to the vertical column bars in an area of maximum tension. This is not a continuity splice, the use of which was defended by Mr. Martin, designer of the frame.

The continuity splice of dowels from the base of a retaining wall and vertical-stem reinforcement, cited by Mr. Martin as a parallel example, is not a parallel example, but an illustration of perfectly good practice in the use of continuity splices.

The accompanying sketch shows the manner in which the reinforcement in a retaining wall would have to be placed to be a parallel to the original detail of tension reinforcement at the

corners of the rigid frame. A second sketch shows a true continuity splice for both cases, considered good practice and non-hazardous when allowable bond stresses are not exceeded.

BERNARD S. DIGIOVANNI
Aldan, Pa.

Causes of prestress losses

SIR: Estimation of stress changes in prestressed concrete is the most difficult problem in the design of prestressed concrete members. The simple case discussed by Mr. Koebel in ENR Nov. 4, p. 37, shows clearly the inadequacy of commonly used methods with fixed stress-loss factors.

Conditions influencing stress changes are discussed in my book, "Prestressed Concrete Structures" (McGraw-Hill Book Co.), in the light of elastic-plastic theory. This discussion indicates that stress losses are dependent on the type of prestressing system, stress condition of a section under sustained load, percentage of prestressing steel, properties of concrete and steel, time of application of prestressing, shape of cross section and climatic conditions.

Furthermore, plastic flow and shrinkage of concrete partly coincide, since the two phenomena originate primarily in sliding of grains under loading and capillary forces. The two phenomena cannot be considered separately as is usually done. Hence, when specifications set a fixed percentage of the initial prestressing force to account for prestress losses, it is obvious that the difference between assumed and actual losses may result in overdesign in some cases and underdesign in others.

Also, it is not good practice to specify the required final prestressing force and a fixed amount of losses due to shrinkage and plastic flow, as suggested by Mr. Koebel. We are interested primarily in stresses at the time the prestressing is applied and also when shrinkage and plastic flow are finished. These stresses are not only dependent on the prestressing force but also on the lever arm of this force with respect to the center of gravity of the member. If there is only a slight change in the location of tendons, stresses will be quite different from those desired, though the prestressing force may be as specified. Furthermore, there are many ways to increase or decrease the lever arm to obtain the most favorable stress conditions in the cross section analyzed;

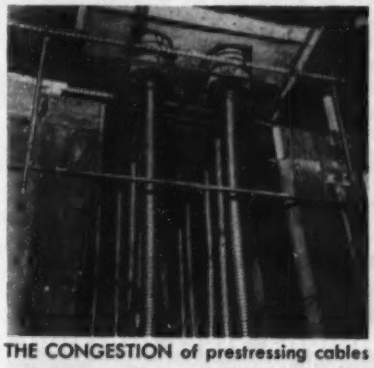
(*Continued on page 8*)

(*Advertisement*)

VIBER VIBRATOR selected for concrete compaction in crucial area to produce maximum density at the point where concrete stress is critical.

Vibration essential in crucial area around prestressing cones

THE RICHFIELD OIL BUILDING ANNEX in Los Angeles is the largest monolithic prestressed concrete office building in the United States today. According to Albert C. Martin and Associates, architects and engineers on this project, prestressed construction was adopted because of design problems resulting from the matching of 10 foot 3 inch floor to floor heights in the existing building. With 8 feet the minimum clearance height, prestressing not only made possible the matching of the high velocity air conditioning ducts, and at the same time installation of recessed lighting, but allowed a 46 foot clear span for flexibility in partitioning of office space. Because of the lack of room for erection equipment the new structure was cast in place.



THE CONGESTION of prestressing cables and cones at the point of maximum load requires top performance from vibration equipment.

• **Concentration of load** on the cable anchorage by stressed cables makes the area around the cones the most crucial area. Because patching of concrete in this area of cast-in-place prestressed concrete could scarcely be tolerated, consolidation of the concrete in this area is particularly important.

• **Guy F. Atkinson Company,** contractor, used Viber 1-5/16 and 1-3/4 inch diameter vibrators. Model E electric motor driven vibrator 1-3/4 inch diameter was used at the base of cone, or where spacing would allow, the 1-5/16 inch diameter Model 26 was used between cones as well as at the base of cone.

For further information on Viber's complete line of internal and external vibrators, contact your authorized distributor or Viber Company, Dept. 67, 726 South Flower Street, Burbank, California.

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Free Bulletin A3000 illustrates many examples of repair and new construction completed with "GUNITE" by the Cement Gun Company. A request on your letterhead will bring a copy by return mail.

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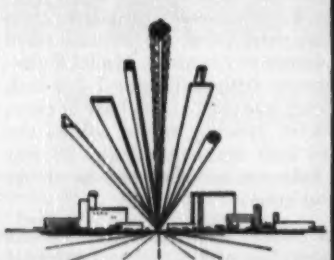

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READER COMMENT

no advantage would be gained from this opportunity if the prestressing force is fixed.

In addition, specification of a fixed prestress loss sets rigid limits for construction procedure that are not desirable. Contractors should be given freedom to choose erection and prestressing methods.

There seems to be only one way to avoid disappointments and failures. That way is to compute the prestress losses in accordance with the elastic-plastic theory, which is simple to apply and requires no more time than uncertain approximations.

I suggest that only the following values be specified for the design and fabrication of a prestressed concrete member: design stresses (given as a percentage of the ultimate strength of concrete and steel) at the time of application of prestress, final stresses, safety factors based on ultimate carrying capacity of the member and safety factor against crack formation under traffic loads. If this recommendation is adopted, many interesting prestressed systems can be offered in public biddings, contributing greatly to a sound development of prestressed concrete structures.

A. E. KOMENDANT
Consulting Engineer
New York, N. Y.

CALENDAR

Engineering Section, American Association for the Advancement of Science, Dec. 27-30, also the **Fourth Conference on Scientific Manpower,** Dec. 28-29, both at the University of California, Berkeley, Calif.

American Road Builders' Association, convention, Roosevelt Hotel, New Orleans, Jan. 10-13.

Highway Research Board, National Research Council Building, Washington, D. C., Jan. 11-14.

National Association of Home Builders, convention, Conrad Hilton Hotel, Chicago, Jan. 16-20.

Annual Concrete Conference, Oklahoma A&M College, Jan. 19-21.

Engineers Joint Council, general assembly, Hotel Statler, New York City, Jan. 21.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Jan. 23-27.

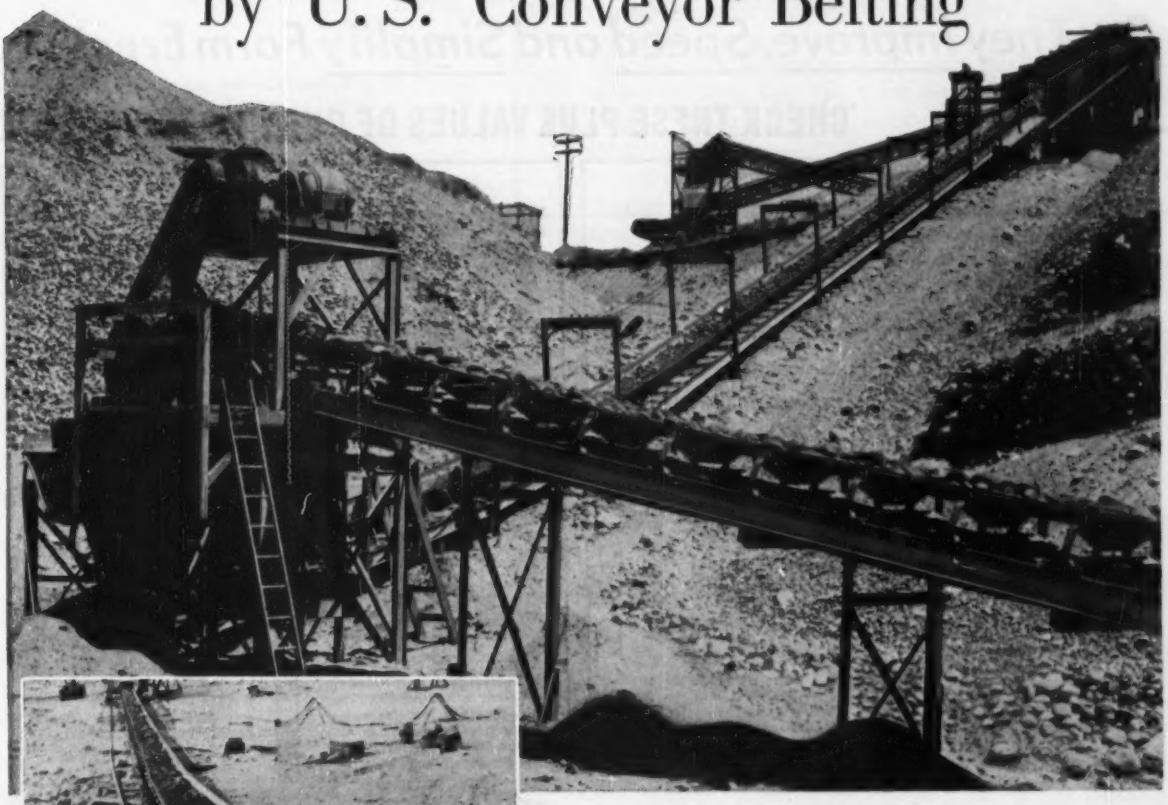
Mason Contractors Association of America, annual convention, Jefferson Hotel, St. Louis, Jan. 30-Feb. 2.

Seventh California Street & Highway Conference, Institute of Transportation and Traffic Engineering, University of California, Berkeley, Calif., Feb. 2-4.

American Society of Civil Engineers, convention, U. S. Grant Hotel, San Diego, Calif., Feb. 8-11.

National Society of Professional Engineers, spring meeting, Hotel Charlotte, Charlotte, N. C., Feb. 18-19.

The roughest haulage for the Chief Joseph Dam is handled by "U.S." Conveyor Belting



Note large and jagged aggregate on "U.S." Belt at Chief Joseph Dam. The belt starts the material from the pit to the rock plant. Upper photo shows another view.

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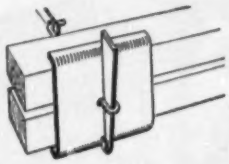

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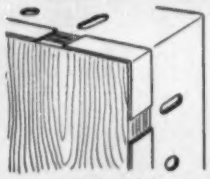

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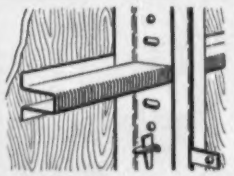

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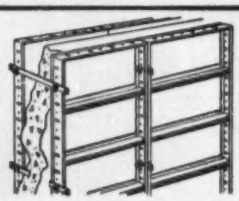

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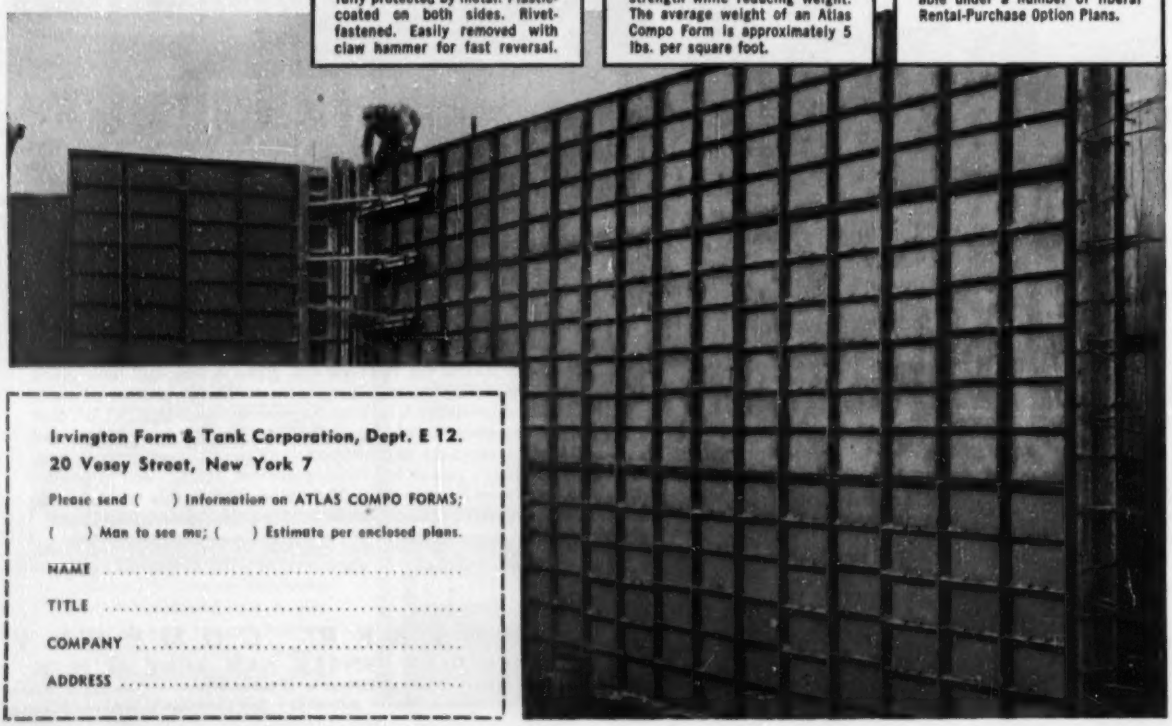

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ENGINEERING NEWS-RECORD

Vol. 153 No. 26 December 23, 1954

Number of copies of this issue printed: 65,448

CONTENTS

NATIONAL AFFAIRS

What Legislation in the 84th Congress May Do... 15
Housing Probe Asks No Further Safeguards..... 16
First Seaway Bids..... 17
Eight-State Organization Reports Good Progress in Anti-Pollution Drive 17
Firm Claims Toll Bridge Agency Was Responsible for $1.3-Million Extra Cost..... 18
Army Engineers Reject Stage 2 bids on Garrison Dam 18
Stainless Steel Facing for Skyscraper..... 19
U. of Michigan Gets Approval for Atomic Unit.... 20

FEATURES

Road Job Tests New Asphalt Specs..... 23
University's 13-Building Program Pulls Drawstring on Subway Campus..... 26
Twin Cableways Used to Set Crest Gates..... 29

FIELD AND OFFICE

Slurry Seal Smooths Out Cracked Asphalt..... 28

BUSINESS PROFILE

Custom Builder in an Age of Competition..... 31

INTERNATIONAL

National Building Show Set for Berlin in 1956..... 33
Chemical Company to Build $65-Million Plant in B. C. 33

NEW PRODUCTS

Ditcher Has Low Clearance, Fast Travel Speed.... 34
Bantam Crane Imitates Spread Eagle..... 34
Gradall Has Self-Propelled Carrier..... 35
New Two-Way Radio System Has Extra Power..... 35
Spreader Makes Echelon Pattern..... 36
Safety Shoes Have Foamed Vinyl Plastic Insulation 36
Light-Duty Torch for Cutting and Gouging Work.. 36

MEN AND JOBS

H. M. Chance Elected United Engineers Head..... 37
Buffalo Engineer Appointed to New York Cabinet Post 37

BUSINESS AND FINANCE

The Longer Look..... 46
Home Fix-up Market Bigger than Expected..... 47
ALCO Will Build Army Package Atom Reactor.... 49
Housing Starts Likely to Pass 1.2 Million for Year 49
Activity This Week..... 49

LABOR

Welfare Fund Handling Under Fire..... 50

Reader Comment..... 6
Calendar 8
Washington Observer.. 13
City by City..... 21
Weather 30
Legal 38
Obituaries 39
Construction Reports.. 40
Unit Prices 45
Editorials 64

THE CONSTRUCTION WEEK

THIRD ROUND—The two-year-old battle over revision of New York State's engineer licensing laws to permit corporate engineering practice is sure to come up for another round in January—but with a new twist.

For the first two years, all the action (ENR Mar. 12, 1953, p. 21) came from a rapidly enlarged group of corporations who saw their legal positions challenged. The corporations, through their "committee for engineering laws," made strenuous—and unsuccessful—efforts to introduce legislation easing the provisions. The New York State Society of Professional Engineers made equally strenuous—and quite successful—efforts to block the change.

But this year, NYSSPE itself is preparing to throw a bill into the legislative hopper at Albany. Now being circulated in draft form for members' approval NYSSPE's measure makes only one concession—it would permit corporate practice if all directors and all engineering employes of corporations are registered PE's.

SALAMANDER DELAY—That $100,000 fire at Detroit's nearly completed northwest pumping station certainly will delay opening of the facility, and be subject of a couple of investigations.

Preliminary checks indicate the fire started when a propane-gas-fed salamander ignited wood scaffolding, then was fed by gas from 30 100-lb tanks used to supply the salamanders.

Contractors are removing the roof of the structure to test strength of structural steel members. Designed to pump and purify 200 mgd from the Detroit River, the plant was scheduled to begin operating June 1.

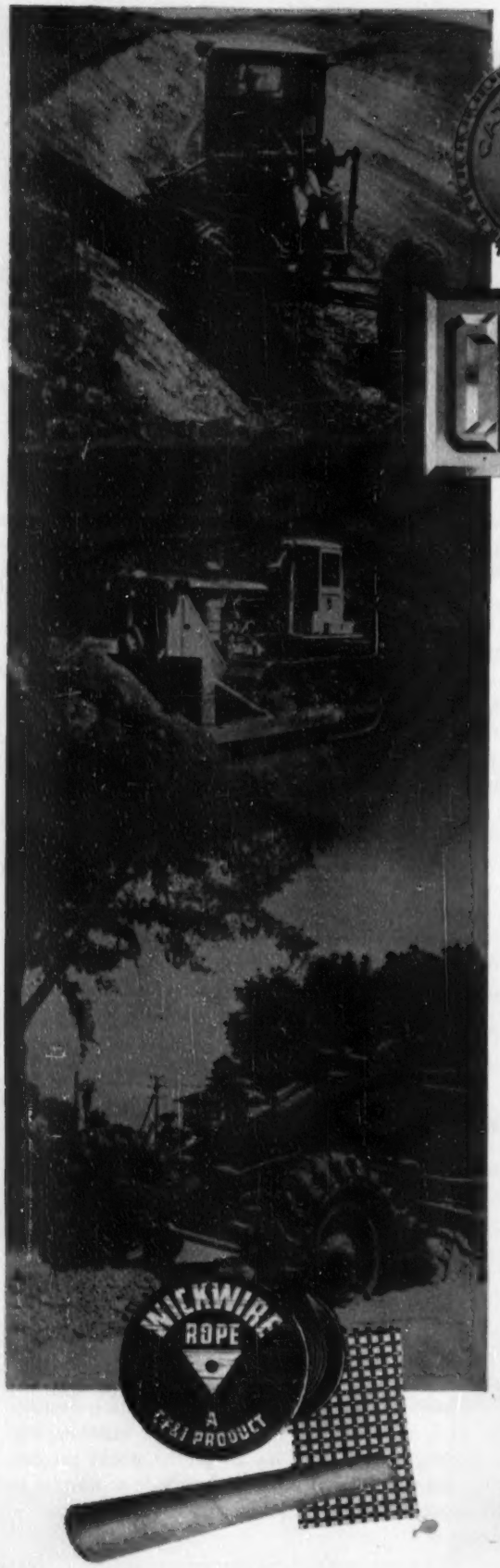
STUBBORN—Residents of Port Recovery, Ohio, just aren't buying any of the state's anti-pollution law.

Under pressure from the state, village officials last July authorized special bonds to finance sewage treatment improvements. Village taxpayers immediately circulated referendum petitions, forced a vote on the action. And they defeated the bond proposal at an election.

State officials, leaving unanswered the question of how the state is to enforce its clean-stream law, said they'd drop any court action against the village.

NAME SUBS—Canada's Public Works Department has promulgated new rules that seem to fall right in line with some recommendations of general contractors in the U.S. in their fight with subs over bid-shopping:

Starting Jan. 1, bids on all public works projects must list names of all subs, and include a promise to use those subs on the job if the general contract is obtained.



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WASHINGTON OBSERVER

Housing starts next year now look like 1.4 million—at least to NAHB. That's up from 1953's 1.1 million, and an estimated 1.2 million for this year.

Government officials privately are inclined to go along, although up to now their official estimate is still around 1.3 million. A total of 1.4-million homes would actually set a new all-time record. Present record for starts is 1950, with 1.396 million—but this included 44,000 public housing starts. Next year, there probably won't be that many units of public housing.

•

A new decision on "hot cargo" boycotts by the teamsters has been handed down. The labor board decision in the long-awaited McAllister Trucking Co. case still leaves plenty of room for confusion.

The NLRB said the hot cargo clause is legal—that the clause permitting unions to refuse to handle goods from an "unfair employer" is not a violation of the Taft-Hartley law.

But a majority of the board says it's illegal to force an employer to abide by their terms of the contract. To be legal, the employer must voluntarily agree to it.

•

States with toll roads have much to gain for state highways—as opposed to interstate highways—depending on how the Clay committee and Eisenhower count toll roads in the new $50-billion program.

The Clay committee has to face this tough money problem: States have built $3 billion worth of toll roads which are in fact part of the interstate network, even though all of them have been built without federal-aid highway funds. The governors want credit for this contribution to the U. S. network which the federal government is now assuming responsibility for. And the Clay committee agrees that this should be done.

•

But the Clay committee has to make up its mind which way to go. And it has to make up its mind before the month is out.

One idea is to give full dollar credit for all toll roads built or now under construction. That amounts to about $3 billion. There would be no credit allowed for any future toll highways that form links of the interstate net.

Another proposal would allow credit for future toll roads financed by the states, as well as those built or under way. Toll roads could be ended completely—or given federal encouragement—depending which way Eisenhower chooses to go.

Administration's experts prefer to make toll roads toll-free by having the states use the federal money they'll be getting under the new program to pay off toll bonds. The object is to make the entire interstate system toll-free. But this is hardly politically possible, as things look now.

•

Many states, however, would have trouble politically in farm areas. Rural politicians are sure to take the view that the federal credit for toll roads should be used to build farm-to-market and other primary and secondary highways. Small communities on the non-federal roads also go the same way. Final decision is up to Congress—and you can look for some compromise formula in order to get the program through.

•

Eisenhower made it easier for foreign makers of turbines and generators to compete with U. S. suppliers for equipment on the hydro-projects. New "buy American regulation" says they get the business if U. S. bidders are only from 6% to 10% higher than foreign low bids. Before, U. S. firms generally got benefit of a 25% margin.

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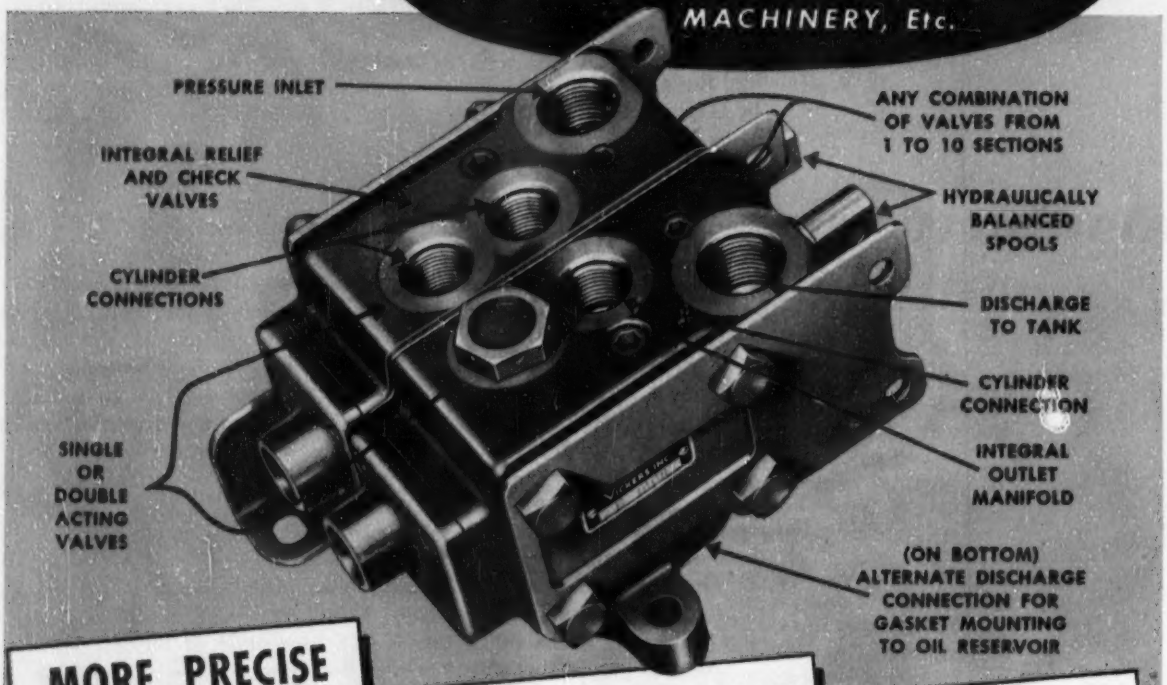
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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

At Christmastime, all those dedicated to the "art of directing the great sources of power in Nature to the use and convenience of man" have a God-given opportunity to reflect on the spiritual resources that give their physical labors meaning and direction. May such reflections make this Christmas more hopeful and happy for every reader—The Editors

Legislation in the 84th Congress May:

- **Set off a cat-and-dog fight between private and public power blocs over projects like Hell's Canyon**
- **Put the federal government in business building roads, schools and other public facilities on a scale that would have seemed impossible not long ago**
- **Start federal construction spending on an upward trend that is likely to continue for a long time**

It's a New Pattern in the Making

A heavy run of construction legislation will come before the 84th Congress at its session beginning Jan. 5.

If you add up the federal construction projects of all types that will be proposed for authorization by the new Congress, you'll get a total of some $37 billion.

Not all of this will be authorized for the full amount, of course. On some projects there will be stiff opposition. But, in general, the Democrats who take over the House and Senate are expected to go along with Administration programs for highways, schools, hospitals, airports, reclamation and military construction.

Additionally, the Democrats can be expected to launch some construction programs of their own. They are likely to try for more public housing, and the Democratic public power block is sure to push for approval of big, new federal power projects.

General legislation on taxes and labor is not likely to change the current generally favorable business climate. The new Congress is not expected to make any important changes in tax laws affecting business. New labor legislation probably will be confined to a slight increase in the minimum wage and minor amendment of the Taft-Hartley Act.

Against this background, it seems a sure bet that federal spending for construction next year will start upward in a trend that is likely to continue for several years as the federal government assumes a larger share of responsibility for building badly needed public facilities.

Here's a rundown of the major construction proposals that will come before the next Congress:

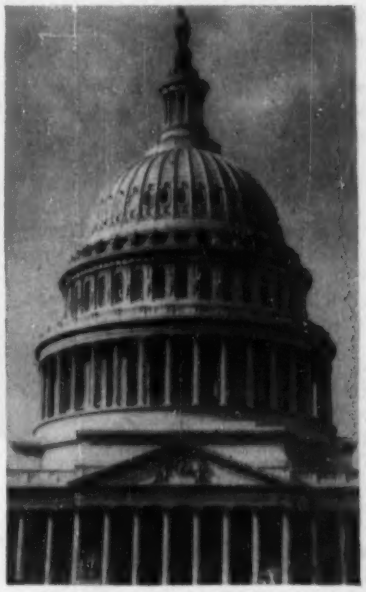
• **Power**—Democrats will give Eisenhower's power policies a critical review. The private vs. public power fight in Congress may well be an outstanding feature of the session.

First move of public power congressmen will be to try to stop construction of a new steam generating plant in West Memphis, Ark., by the Dixon-Yates Mississippi Valley Generating Co.

Whether or not this move succeeds, the debate will sharpen the differences between the opposing camps and color discussions of other power projects such as Hell's Canyon.

• **Highways**—A special Presidential committee, headed by Gen. Lucius Clay, will shortly have ready for the President recommendations calling for an additional $50 billion of highway construction on top of the $47 billion due to be spent over the next 10 years.

Details of the ambitious program designed to bring the nation's highways up to snuff will be touched on in the President's State of the Union Message early in January and will be laid out in full in a special highway message due to come in February.



There is little opposition to the program. The only conflict will develop over how to finance the federal share —which would run around $25 billion. The Clay committee is expected to propose setting up a new federal highway authority which would be authorized to sell bonds at 3% interest or thereabouts. The bonds would be paid off by money coming in from federal highway user taxes on gas and oil.

However, a Democratic push is expected for financing the federal share through the federal budget—which would be more in line with Democratic financing concepts and at the same time add to the Administration's budget-balancing problems.

• **Reclamation**—On the House side there is some talk of a one-package approach to get around regional opposition to some of the key reclamation

(*Continued on page 16*)

. . . Congress

projects that bogged down last session. The idea would be to lump the $1.5-billion Upper Colorado River water storage project, the $225-million Trinity River project, the $172-million Fryingpan-Arkansas water diversion project, the $100-million Yellowtail project in Montana and the Washita Basin project in Oklahoma.

In the Senate, however, there is less interest in the single-package approach. There was little opposition there to any of the projects and prospects are that they will be reintroduced in January in about the same form as last session.

• **School construction**—There are strong prospects that the next Congress will put the government in the general school construction business, if only on an emergency basis.

Health-Education Welfare Dept. officials place the current classroom shortage at 370,000 and predict that it will jump to 470,000 by 1960 unless something is done to step up school construction sharply.

Most of the proposed legislation would call for the government to participate on a 40-60 matching basis with the states, the latter putting up the larger share. This ratio is designed to discourage states from seeking federal aid on construction they don't really need.

• **Airports**—After last year's pause, there will be a push in Congress next session to overhaul the basic Federal Aid Act.

The problem is the inability of many cities to provide for expansion of their airport facilities, even with federal aid under the present setup. Although some 1,200 cities are under the federal sponsorship agreements, only 164 got federal aid last year.

• **Hospital aid**—Prospects for new authorization for federal aid to hospitals is vague, primarily because there yet remains a total of $75 million in authorizations under the Hill-Burton Act and $159 million of the $180 million authorized last year for diagnostic centers and nursing homes.

Administration emphasis in the next session will be placed on getting Congress to give it money already authorized rather than on writing new authorizations on the books.

• **Military construction**—Prospects are for as much if not more than the $1.4-billion military construction authorized last session. As last year, the lion's share is slated to go to the Air Force. The breakdown last year: Army, $236 million; Navy $201.8 million; Air Force, $398.9 million in new funds and $309,000,000 in previously authorized money.

Estimates are that military works spending will total around $1.5 billion in 1955, and maintain that rate until midyear in 1957. To keep this up, new projects will have to be appropriated for in the new Congress.

Thumbs Down

Toll roads ruled out in Arkansas, Wisconsin

Arkansas, after two separate surveys, has ruled out toll financing of new highway construction, and a proposed 33-mi toll road in Wisconsin has been reported unfeasible for the present.

The Arkansas Legislative Council, an interim legislative study group, closed the door on toll road construction by accepting a report of its highway committee which concluded that not even the most heavily traveled routes in the state could justify toll financing.

The council noted that highways considered for toll financing were part of the interstate system, which under the Eisenhower road program seems likely to become a primary federal responsibility.

About a year ago the council received a report adverse to toll road propositions from the University of Arkansas Engineering Experiment Station (ENR Feb. 11, p. 25). Then, in June, consultants were engaged by the state highway department to make a study of the proposed Little Rock-West Memphis route, one of five considered by the university report to be most nearly feasible. Brown & Blauvelt, New York engineers, and Wilbur Smith & Associates traffic engineers of New Haven, Conn., made this study (ENR June 17, p. 26).

• **Two down in Wisconsin**—The unfavorable report on the proposed reconstruction of U. S. Highway 41 as a 33-mi toll road running from Milwaukee south to the Illinois state line is the second adverse toll road report received by the Wisconsin State Highway Commission recently. Preliminary traffic and engineering studies for a toll road along U. S. 12 between the Illinois and Minnesota borders also was deemed uneconomic for the present.

On the U. S. 41 proposition, which was estimated to cost about $31 million, the report by Coverdale & Colpitts indicated that it would produce revenues that would be sufficient to finance only $12-million to $15-million investment.

Housing Probe

Toned-down report on windfall profits asks no further safeguards

The Senate Banking Committee, which probed the housing scandals earlier this year, has come to the conclusion that legal loopholes responsible for windfall profits have been pretty well plugged by the 1954 Housing Law, signed last August.

In a report this week, the committee suggested giving the safeguards written into the 1954 law an opportunity to prove their effectiveness before considering further tightening of the provisions.

Sen. Homer E. Capehart, outgoing committee chairman, and his Republican colleagues were talked out of making some sweeping indictments in the report. And, even after the document had been tempered to the point where the Democrats were willing to go along with its publication, the six minority members issued a statement criticizing some of the conclusions.

In the final version, the report blamed the government-insured housing loan scandals on "a few greedy, and sometimes dishonest, builders and repairmen, and incompetent, lax and sometimes dishonest FHA officials."

That was a far cry from the original version, which reportedly opened with a flat charge that windfall profits reaped by builders in the Section 608 postwar apartment program totaled $1 billion.

But Sen. Capehart had his say in a separate statement that describes the "FHA housing record over the past 20 years—the biggest scandal in the history of our government." He pinned particular blame on Clyde L. Powell, ousted FHA Commissioner in charge of rental housing, who recently was sentenced for criminal contempt.

The report hits two aspects of the government's loan insurance program—Section 608 projects and home improvement loans under Title I of the Housing Act. Its 140 pages of printed matter are based on 43 days of public hearings in seven cities.

On the Section 608 program, the report says that 437 projects of 543 investigated obtained FHA-insured mortgages in excess of actual costs.

A total of 7,045 projects was built under this program, which expired several years ago.

Says the report, "These frauds could not have occurred had the criminal penalties against false application been enforced. It was not defects in the statute but its maladministration by FHA which was responsible for these frauds."

First Seaway Bids

Kentucky firm bids less than half of estimate for first U. S. contract

The Badgett Mine Stripping Corp., Madisonville, Ky., was the lowest of 27 bidders for the first construction project on the United States part of the St. Lawrence Seaway.

Badgett bid $1.4 million for the job—less than half the government estimate of $2.9 million. About 150 representatives of construction firms were present for the bid opening at the Buffalo district office of the Army Engineers.

The job involves removal of 3.9 million cu yd from the Richards Point, Croil Island and Long Sault Island section of the Long Sault Canal and construction of an embankment that will require 300,000 cu yd of earth.

The canal when completed will be about 10 mi long—the longest single navigation channel in the project. It will extend from east of Louisville Landing, N. Y., to near Cornwall, Ont. It will bypass Long Sault Rapids, carrying Seaway traffic south of the river channel.

The canal will be 27 ft deep and 442 ft wide. It will run through some hard glacial rock and through some soft marine clay, according to Thomas F. Airis, who will be the engineer on the job.

J. Rogers Badgett, president of Badgett Mine Stripping Corp., said it would take about 100 days to move in the 650-ton dragline that will do most of the excavating. He said the contract would be completed in about 550 to 600 working days. The contract allows 715 calendar days for completion of the project.

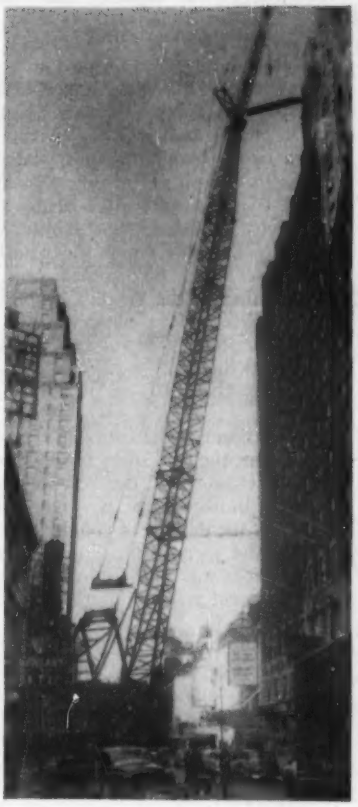
Badgett's bid must be reviewed by the Corps of Engineers and by the St. Lawrence Seaway Development Corp. before the contract is awarded.

$4.6-Million Toll Bridge Approved for Spokane

Washington state toll bridge authority has approved prompt construction of a new $4.6 million bridge across the Spokane River at Spokane. The 6,800-ft-long bridge will provide a major cross-river route between the city's north and south sides.

The Tudor Engineering Co., San Francisco, and Kenneth P. Norrie & Associates, Spokane, have been engaged to draw preliminary plans and conduct surveys.

Coverdale & Colpitts, New York, estimated more than 3,300,000 vehicles would use the toll bridge in the first full year of operation.



Boom Service

Hotel gets a penthouse with aid from long boom

Construction of a penthouse atop a New York hotel was speeded when a crane with a special boom was used to lift 60 tons of steel in 2½ hours—16 floors above the street.

Measuring 190 ft from mounting to jib tip, the boom weighs almost 10 tons and provides a lifting capacity of 80 tons at a 12-ft radius. Designed, fabricated and employed by the Dreer Structural Steel Co. of Long Island City, N. Y., the big boom was mounted on a standard Model 1005 Kochring excavator-crane. Cost of the entire unit was about $80,000

Besides the hotel construction, the big rig has been used effectively on other projects in the metropolitan area. One of these, a 16-story apartment building on Manhattan's East Side, was supplied with all its steel in 19 days through the use of the machine.

At present, equipped with a standard boom, the rig is being used in the construction of a church in Brooklyn.

The steel company is considering building an even longer boom for the unit. The new boom will be constructed of alloy steel to conserve weight and will provide a lift of 210 ft.

Ohio River Cleanup

Eight-state organization reports good progress in anti-pollution drive

A notable increase in construction of municipal sewage treatment plants has taken place during the six-year river clean up campaign conducted by the Ohio River Valley Water Sanitation Commission.

In its 1954 report, Orsanco notes that 45% of the sewered population of 9,322,000 in the 115,000-sq mi area covered by the eight-state anti-pollution compact is being served by treatment facilities. This is a 3% gain for 1954 alone.

Treatment plants that will serve another 9% of the population are under construction for a 4% gain. And construction plans have been approved for plants that will serve 26% more of the population—a 10% better showing on this score.

Orsanco's 1954 report notes with satisfaction that "population served by sewage treatment facilities during the past six years increased at a rate of four times faster than was the case in a similar period prior to the establishment of the commission."

The box score on control of industrial wastes is given in the Orsanco report as follows: 361 or 30% of the 1,190 industries discharging directly into streams of the compact area are rated by state agencies as having adequate treatment and control facilities; 429 or 36% have provided some form of control, though not all of it up to proper standards; 32 new installations are under construction; and 129 firms have facilities presently in the planning stage.

"Equally important," according to the report, "is the reduction of pollution loads from thousands of industries that discharge into municipal sewer systems where treatment plants have been built. For example, there are some 1,800 industries in the city of Cincinnati whose wastes will be treated along with domestic sewage."

The commission's sixth annual report, submitted by Edward J. Cleary, its executive secretary and chief engineer, also noted that Orsanco's sewage treatment standards, based on exhaustive investigations and public hearings, have been completed for the entire 981 mi of the Ohio River from Pittsburgh to Cairo (ENR April 9, 1953, p. 23).

The compact was signed June 30, 1948 and involves the eight states of Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia plus federal government representation.

Contract Dispute

Firm claims toll bridge agency was responsible for $1.3-million extra costs

A year-old contract dispute between the construction firm of Johnson, Drake & Piper Inc. and the Delaware River Joint Toll Bridge Commission—in which the contractor seeks damages amounting to one-third the contract price on three bridges—finally has landed in the U.S. District Court in Trenton, N. J.

The construction firm is seeking to recover $1,367,026 from the bridge commission in extra costs it claims were incurred while building the substructures of three highway bridges across the Delaware River.

Complaint is that the bridge commission ordered the plaintiff to do work in excess of that specified in the contract; that the commission interfered with and impeded "the timely and orderly completion" of the job; and that the nature of the work was "misrepresented" in plans and specifications.

In addition, the construction firm is suing the Delaware, Lackawanna & Western Railroad for $373,990. It claims the railroad interfered with construction by imposing arbitrary and unreasonable demands on the contractor.

The construction firm seeks an injunction against the bridge commission's efforts to submit the dispute to arbitration.

A preliminary restraining order was issued by Federal Judge Phillip Forman when the suit was filed. Arguments will be heard Jan. 17 on whether the ban on arbitration should be made permanent.

The suit arises from three contracts awarded by the toll bridge commission in October 1951, for construction of the substructures of the Delaware Water Gap bridge, the Portland, Pa.-Columbia, N. J. bridge, and the Milford, Pa.-Montague, N. J. crossing. The three contracts amounted to around $3.7 million.

Seven of the nine counts in the suit are directed against the toll bridge commission.

The contractor, in the first count, seeks $544,881 for extra pile work. The firm contends it was required to drive end-bearing piles into rock instead of shorter friction piles "as contemplated in the contract."

According to the complaint, "the plaintiff was compelled by the defendant's engineer (J. E. Greiner Co., of Baltimore), but only under protest, to drive steel bearing piles to solid rock, regardless of higher elevation at which required 75-ton capacity may have been achieved."

Finally, the plaintiff contends it also was required to drive end-bearing piles for piers where the contract did not provide for piles of any type.

The commission is charged with violation of contract provisions whereby it was to furnish all bearing piles and splice material without cost to the contractor in a timely and economical manner. On this score, the plaintiff complains that "66 railroad cars of piling arrived at the Water Gap bridge in the space of four consecutive days, making it impossible for the plaintiff to unload such cars without incurring demurrage charges."

• **Excavation costs at issue**—In the second count, the firm seeks $188,995 on the contention that the "commission delayed unnecessarily in giving approval to the designs of cofferdams for two of the piers located on the railroad right-of-way and required the contractor to get railroad approval of the design."

The amount of $216,078 for extra excavation expenses is sought under the third count. Riprap excavation, said to be a low-cost factor in a unit-price item also including more costly work, was substantially eliminated at the owner's direction, according to the complaint.

Thus, claims the contractor, yardage payments were reduced 30%, while the firm's costs were reduced only negligibly. "This action resulted," the plaintiff continued, "in drastically unbalancing the composite bid price."

Other counts ask recovery of liquidated damages of extra expenses due to "misrepresentation" of normal water levels, and of final payment for contract completion.

The two counts against the Delaware, Lackawanna & Western Railroad seek $373,990 in damages which the plaintiff contends resulted because the railroad imposed "unreasonable requirements in the construction of cofferdams and compelled the plaintiff to use a cofferdam design far in excess of good engineering practice."

ASCE Establishes Award To Honor Ernest Howard

The American Society of Civil Engineers has established an Ernest E. Howard Award "to recognize a civil engineer who has made a definite contribution to the advancement of structural engineering through either writing or performance."

The award is in honor of ASCE's president during 1950, who died last year. It was made possible by funds donated by his widow.

Garrison Dam Bids

Army Engineers reject Stage 2 bids, will open new bids on job Feb. 1

Army Engineers announced the rejection of all bids on the Stage 2 Garrison Dam spillway stilling basin job because of an error of about $1 million in the low bid.

The action followed the protest by the combine of Peter Kiewit Sons Co. of Omaha, Neb., and Morrison-Knudsen Co. of Boise, Idaho, against their own bid of $6,159,006, which was low of four bids on the work. The combine alleged that it had neglected to include indirect costs for overhead on the project.

The action was announced by Col. Henry L. Hille, head of the Garrison Dam district, following a directive from Maj. Gen. B. L. Robinson, Deputy Chief of Engineers at Washington, to whom had been forwarded the question of alleged error and substantiating evidence supplied by the contractor.

Gen. Robinson's directive said it is "in the best interests of the government to reject all bids." It said the allegation of error had been substantiated but that the exact amount of error is indeterminable.

New bids will be opened Feb. 1, 1955.

The PK-MK bid was more than $1 million below the government estimate and was more than $2 million below the next bid.

Government estimate, figured without allowing for any profit, was $7,666,195. The next bid in line amounted to $8,493,701.50.

Maxon Announces Auction Of Equipment, Materials

Surplus construction equipment and materials with a book value of $3 million is slated to be sold at auction Jan. 18 and 19 at the Atomic Energy Commission's Oak Ridge plant in Tennessee by the Maxon Construction Co., Inc., prime contractor for expansion of the plant.

The Effron Corp. of Cincinnati, Ohio, will conduct the auction for Maxon. The auctioneer was chosen on the basis of competitive sealed bids.

For prospective buyers there is one hitch. The material and equipment currently are being screened by representatives of other AEC installations and other government agencies. Transfers of material and equipment to these installations and agencies may reduce considerably the amount to be sold.

Stainless Steel Facing for Skyscraper

42-story building in Mid-Manhattan will set new records for metal exterior, air-conditioning, elevator systems

Stainless steel has been selected as the exterior facing for the 42-story Socony-Vacuum building now under construction opposite New York City's Grand Central Station.

The structure, for which ground was broken in March, will be the world's largest metal-clad building. And, spacewise—1.3 million sq ft—it will be the sixth largest. It will set a record for commercial structures completely air-conditioned; its automatic elevator system will be the largest yet installed.

Nearly 400,000 sq ft of panels will be used as pier covers and spandrels. Reversible windows, frames, mullions and louvers also will be stainless steel. The metal will be 0.037-in.-thick 18-8 chromium-nickel-type stainless steel. To meet building and fire code requirements, there will be a 4-in.-thick masonry wall backup with 1-in. air space.

The stainless steel facing weighs about 2 psf, compared with 48 psf for a 4-in.-thick brick wall. A three-dimensional pattern of embossed triangular shapes will give pier covers and spandrels a light and shadow effect.

The three-story base of the building will cover a two-acre block. A central tower will rise above the base to the full 42-story height, flanked on two sides by 14-story sections.

Erection of the steel frame was started in November and is scheduled for completion next spring.

Harrison & Abramovitz, with John B. Peterkin as associate, of New York, are the architects for the structure, which is being built for the Galbreath Corp. Turner Construction Co. is the contractor. The stainless steel paneling will be fabricated by the Commercial Shearing & Stamping Co. and the windows by Truscon Steel Co.—both of Youngstown, Ohio.

• **Elevator installation**—Otis Elevator Co. holds a $3.2-million contract—largest on record—for installing moving stairs and 32 electronic-controlled elevators in six banks, plus four service elevators. Speed will range from 500 fpm for the low-rise banks of cars to 1,200 fpm for the high-rise group. An express run from the lobby to the 42nd floor will take only 30 seconds.

Banks of three low-rise elevators each from the lobby to the fourth floor will be installed on the east and west sides of the building. Banks of five intermediate-rise cars each will operate from the lobby to the 11th floor on the west side and to the 12th floor on the east side. Eight cars will provide service to the 25th floor of tower; eight others will go to 42nd.

• **Unique cooling-heating system**—The building will be both heated in winter and cooled in warm weather with purchased steam. The air-conditioning system is unusual, not only because this is the largest new building to date to be totally air conditioned, but because it also will be a combination compressor and absorption type. As designed by Jaros, Baum & Bolles, New York consulting engineers, the system will use the steam twice.

From the lobby through the 14th floor, the building will be cooled by three turbo-compressors, one a 1,000-ton extraction turbine, totaling 2,500 tons refrigeration capacity. Exhaust steam from the extraction turbine will be piped to the roof, where it will operate up to 1,400 tons of absorption refrigeration to cool the tower section above the 15th floor. Condensed steam from the absorption equipment will be discharged to the cooling tower to replace water lost by evaporation.

Pacific Northwest to Get Canadian, U. S. Natural Gas

The boom in pipeline construction got another boost last week with the signing of a three-company agreement whereby the Pacific Northwest—last major industrial area to be without natural gas—can be supplied both from Canadian and domestic sources.

The agreement opens the way for a web-like pattern of pipelines spreading from the Peace River Valley in north central British Columbia to the San Juan Basin in Colorado and New Mexico.

Westcoast Transmission Co., Ltd. of Calgary, will build a 600-mi. line from Fort St. John on the Peace River to Sumas, Wash., just inside the U. S. boundary near Vancouver. This line is estimated to cost over $100 million. Construction is scheduled to start early next year and to be completed in 1957.

Pacific Northwest Pipeline Corp. of Houston, Texas, will go forward with a $160-million, 1,446-mi. pipeline from the San Juan Basin to Sumas. (FPC approval has been obtained and preliminary survey made.)

El Paso Natural Gas Co. will build a 370-mi., $35-million pipeline from Pacific Northwest's line at Mountain Home, Idaho, to Reno, Nev.

New Approach to the Golden Gate Bridge

Terraced sidehill cuts blaze the route of a new approach to the Golden Gate Bridge in San Francisco. The job includes a new 1,000-ft tunnel (in background) paralleling the existing Waldo Tunnel and conversion of a 4-mi stretch of highway into a six-lane divided highway. The new approach will be part of the 51-mi section of U. S. Highway 101, stretching from the bridge to Santa Rosa, to be called the Redwood Freeway. Completion is scheduled for late 1955.

Jobs in the News

DAMS—Four firms, C. J. Montag & Sons and Carl M. Halvorson, Inc., Portland, Ore., and Cascade Contractors, Inc., and Austin Construction Co., Seattle, submitted the low bid of $12.6 million for Phase II of The Dalles Dam powerhouse (ENR Jan. 14, p. 23). Work covered by the bid includes the concrete non-overflow dam between the spillway and powerhouse, and superstructure for the powerhouse.

SUBWAY IMPROVEMENTS—Poirier & McLane, New York, submitted the low bid of $14.3 million for a portion of the DeKalb Ave. Subway reconstruction in Brooklyn, N. Y. Bid covers street improvements and bridge construction on the project.

MEDICAL CENTER—Ragnar Benson, Inc., Pittsburgh, received a $13-million contract from University of Pittsburgh for construction of its School of Medicine.

PIPELINE—Northern Natural Gas Co., Omaha, Neb., will construct, with own forces, a gas pipeline through North and South Dakota and Minnesota for distribution of natural gas from Canada. Estimated cost exceeds $50 million.

ROCKETS—H. B. Zackry Construction Co., San Antonio, Texas, was awarded the contract for construction of a plant to manufacture jet assist take-off rockets for the U. S. Air Force, at McGregor, Texas. Estimated cost is $8 million. The plant will be operated by Texas Phillips Petroleum Co., McGregor.

Building Set on Turntable Will Rotate to Follow Sun

A six-story office building that will rotate on a turntable for maximum utilization of the sun's heat and light is being designed in Denver by architect Jared B. Morse.

Morse said he plans to use lightweight materials in the $2.2-million structure, the key unit in a $7.2-million oil-uranium administrative center planned for Grand Junction, Colo., by two Texans, Lucien Cullen and Welborn Foreman, both of Houston.

Morse said his plans will be completed in about 90 days. He said the building will rest on a turntable, controlled by a time mechanism, to swing in a 90-deg arc. The device will pivot the building broadside to the sun in the winter and keep it edgewise to hot summer sunrays.

In shape, the building will be like a paraboloid with the base resting on the turntable. The roof will be curved to make the lightweight structure rigid. Construction throughout will be glass and lightweight sandwich panels, like those used in aircraft.

The oil-uranium center is intended to serve as the "energy capital" for the Colorado plateau, the vast area of Utah, Arizona, New Mexico, Colorado and Wyoming where most of the nation's uranium is being mined. Grand Junction, on Colorado's western slope is in about the geographical center of the area and is the headquarters for the Atomic Energy Commission's main operations office in that region.

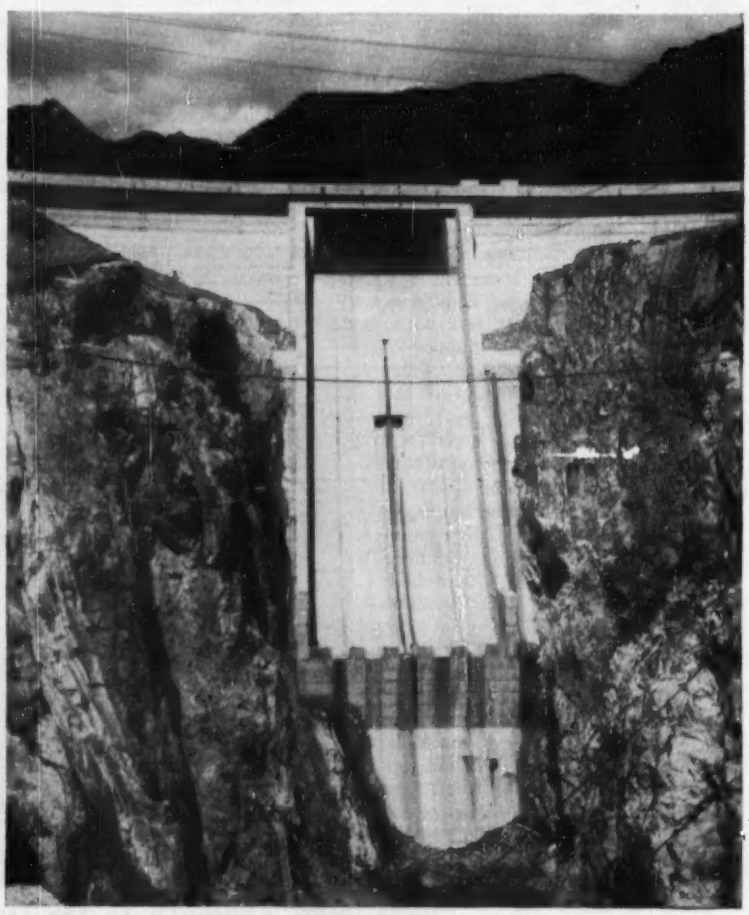
Cullen is president of Atomic Power Uranium Corp. which has extensive uranium holdings, including a 10,000 ton ore body on Tenderfoot Mesa near Grand Junction. Foreman is president of the Fargo Uranium and Oil Co. which holds 442 uranium claims on the Colorado plateau.

University of Michigan Gets Approval for Atomic Unit

The University of Michigan has received final approval from the Atomic Energy Commission to proceed with construction of a 1,000,000 watt nuclear reactor and a building to house it. Construction is expected to start early in 1955.

The structure and reactor are being financed by a grant of $1 million from the Ford Motor Company Fund, made to the University's Phoenix project, a research program on the peaceful uses of atomic energy.

The windowless, three-story structure (an addition to the north end of the Phoenix Memorial Laboratory now being built) will be 40 ft. high, 70 ft. square and will have concrete walls 1-ft. thick. Inside the building, a 40,000-gallon tank of water 26 ft. high will have walls of special high-density concrete 6 ft. thick at the base.



Canada's Highest Concrete Dam

Cleveland will increase the water supply of the Greater Vancouver, B. C. Water District by some 200 mgd. The $10-million structure stands 325 ft high but less than 150,000 cu yd of concrete went into its construction. The dam plugs the narrow gorge of the Capilano River only 8 mi from Vancouver. It is built on a 900-ft-radius arch except that the 70-ft-wide spillway is straight.

Code—Pro and Con

St. Louis—A bill to amend St. Louis' building code to permit use of metal panels in exterior walls of large buildings has been passed by the board of aldermen.

The amendment, recommended by the aldermanic committee on public safety, limits use of panels to buildings with more than 100,000 sq ft of floor space. And it forbids this type of construction for schools and hospitals.

Principal opponents of the legislation were the bricklayers union and the building materials industry. But both withdrew objections when the bill was changed to restrict its provisions to buildings of a certain type and size.

Several construction projects reportedly hinged on passage of the amendment. They include a $6-million building for Brown Shoe Co. and a 10-story, $3-million apartment for Glick Real Estate Co.

Buffalo, N. Y.—The Buffalo Federation of Labor has voiced opposition to proposed amendment of the city's building code that would allow use of aluminum and steel panels on the exterior of new buildings.

The BFL holds that the step would be against the interests of labor. It attacks the amendment on three fronts: (1) Hundreds of workers employed in the clay trades would be made jobless, and workers engaged in the manufacture of building materials would be adversely affected; (2) aluminum and steel panels are not manufactured in the Buffalo area; (3) use of the new materials would lower fire resistance standards of the code from four hours to one hour.

If the code change is made construction of a seven-story building costing $2.5 million will begin this summer in downtown Buffalo.

Tax Theory

Denver—A district court decision has stalled a $1-million city storm sewer project by holding that property owners on high ground—from which the storm waters flow—cannot be taxed heavily to save property owners on low ground.

The court ruled that Denver's plan for paying for the 2.1-mi storm sewer is illegal because it would assess 80% of the property owners in the 800-acre district more than the benefits would be worth.

Under the proposed city plan, property owners in the low area would be assessed $122 per lot. Those on high ground, where no submains or laterals would be located, would be assessed at $60.

City officials plan to make an appeal of the ruling of the Colorado Supreme Court.

Sequel to a Suit

Seattle—The Automobile Club of Washington has brought suit against Seattle for using street-fund money to pay a $115,000 judgment arising from a traffic accident in which the city admitted liability.

The accident occurred when an automobile struck a bridge leaf that had been raised slightly during a test of bridge machinery. One person was killed, and two others, injured.

The city paid the resulting judgment out of the street fund, which contains gasoline-tax money. Now—in its suit—the club asks that the transfer of money from the fund be declared unconstitutional. It wants the city to pay the money directly from emergency or general funds. If the club wins the case, the state highway commission could withhold gasoline-tax funds from Seattle until the amount is made up.

Seattle holds that legally it can use gas tax funds to meet the judgment. Its case hinges around the fact that while highway funds are restricted to highway purposes, state law also provides that those purposes include the cost and expense of operating movable-span bridges. And the city acts as the state's agent in operation of the bridge where the accident occurred.

Educational Experiment

Phoenix, Ariz.—In an area where almost everything—including chicken coops—is air conditioned, Phoenix schools are just getting around to acting on a long-disputed proposal to cool classrooms. And the step may develop an entirely new concept of high school operation in Arizona.

The plan—now being considered by the Phoenix Union High School Board of Trustees—calls for air conditioning schools and placing them on a year-around basis. Instead of two semesters, there would be four quarters with attendance made mandatory at only three quarters.

Phoenix is expanding rapidly, and schools have been pressed to keep up with the population increase. High schools completed last year are overflowing this year and additional classrooms already are needed. (A few of the recently erected high schools have cooling ducts built in, but no cooling equipment.)

Under the four-quarter school year, educators believe they can handle 25% more students in existing facilities and still save $500,000 a year. This is the way the saving is figured. Putting air conditioning in existing schools would cost an estimated $3.5 million and permit accommodation of 3,000 additional students. But building a high school for 3,000 students would cost $4 million.

Motel Airport

Pittsburgh—The Pittsburgher Hotel, owned by Knott Hotel Corp., is moving to meet motel competition by opening its own $450,000 motel which is situated across from Greater Pittsburgh Airport.

Located on six acres of land, the motel now contains 56 units but may be expanded to 150 units later. A steak house, lounges and meeting rooms are scheduled to be added in the spring.

Meanwhile, airport officials report that because business is booming at their own 62-room hotel, located in the main terminal building, 24 new rooms may be added to take care of the overflow.

Prospective Plant

Raleigh, N. C.—Prodded by legal action from the neighboring town of Smithfield, Raleigh has submitted engineering plans and specifications for a $2.1-million sewage treatment plant on Walnut Creek. At the same time, the city applied for a permit to build the facility.

A number of months ago Smithfield—located down the Neuse River from Raleigh—obtained a court judgment against the capital city. The judgement restrained the city of Raleigh from emptying raw sewage into the river and ordered it to provide adequate sewage treatment facilities by Jan. 1, 1955.

So far, a 20,000-ft Walnut Creek outfall line is nearing completion, and work has started on a 16,000-ft Crabtree Creek line. But since contracts still must be awarded for a pump station and force main—in addition to the treatment plant itself—Raleigh is expected to ask the court for an extension of time in which to complete the program.

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ASPHALTIC CONCRETE PAVING on a California highway contract will aid development of asphalt requirements aimed at producing more durable pavements.

Road Job Tests New Asphalt Specs

Asphalts from eight different sources are being used in surfacing a six-mile highway job in California as part of a program aimed at improved asphalt specifications.

California highway engineers have not been satisfied with all results obtained in asphaltic concrete paving work—particularly as concerns durability—and have been working to develop better specifications covering asphalts delivered to the job from refineries.

After considerable research, a new set of standards has been worked out that may or may not give considerably improved results. And now a routine stretch of highway is being paved with several asphalts—some meeting the new specifications—to see if a better, more durable surface can be obtained.

Definitive results of the test program are not expected for several years. And it is even possible that no marked differences will be observed. Reason is that it may take years under normal traffic loads for any of the pavement sections to exhibit conclusive deterioration. Furthermore, if all asphalts used behave similarly, there can be no conclusions—except, of course, that the new specs are no better than the old in this case. Deficiencies in quality of materials often show up only under severe or adverse job conditions.

• **Normal construction job**—The project involved is a 6-mile section of 4-lane divided highway on U. S. 101 about midway between Santa Barbara and Santa Maria. The asphalt test features were added as an extra after the $1-million contract had been awarded to Madonna Construction Co. of San Luis Obispo. Cost of the test boils down to the additional expenses incurred by the contractor in purchasing and handling the several asphalts used. Results: no inflated bid prices due to the test program; and assurance of routine high production paving methods such as would ordinarily be used.

Six of the eight asphalts meet the new specifications; two meet the old. Of the six new-type asphalts, two come from crude oil from each of the three major oil producing basins in California—Los Angeles, Santa Maria and Kern County (the latter crudes are almost all piped to San Francisco Bay Area refineries for processing). Purpose is to determine if crudes from the three areas will produce paving asphalts with widely varying service characteristics. The two asphalts from each basin, of course, come from different producers. And the two asphalts meeting the old specs are from different areas—one from Santa Maria and one from Kern County.

• **Two phases**—The highway job itself consists of converting an existing 2-lane road through rolling country into a 4-lane, divided, rural expressway. This has the effect of splitting the work into two phases: grading and paving two new lanes that roughly parallel the existing lanes (this work has now been completed and traffic is using it); in effect constructing a second story over the existing road. Grading will be done this winter with paving of the second two lanes expected in early spring.

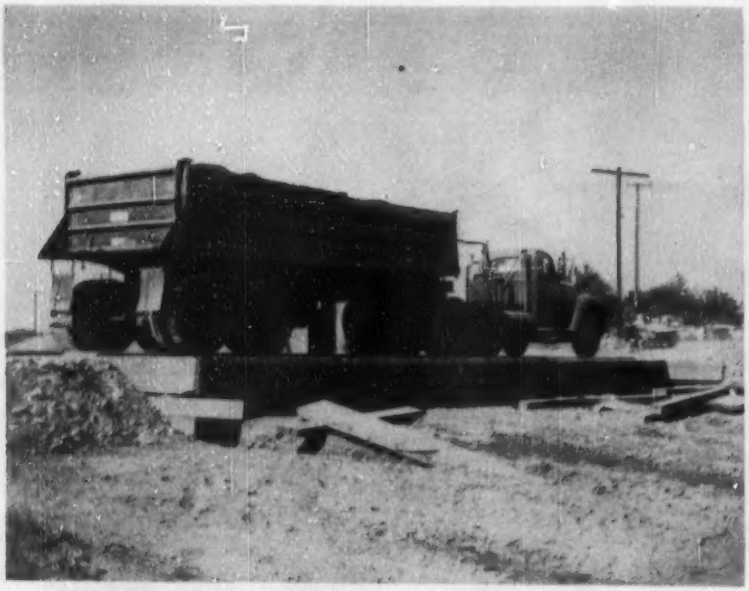
On each part of the divided expressway, each of the eight asphalts is used for surfacing a length of at least 2,500 ft. Thus, each asphalt is tested on a completely new grade as well as on what amounts to improvement of an existing road.

The 2,500-ft sections are selected to result in nearly equal conditions insofar as such things as grade and exposure are concerned. The contractor is free to select the asphalt to be used on the part of the paving not included in the 2,500-ft sections.

For the new road, geometry of the pavement includes 8 in. of cement treated base over a 12-in. thickness of compacted, imported subbase material. Where the surface is a "second story" over existing pavement, cement treated base is only 6 in. thick, placed on the old surface. Of course shoulder areas alongside old pavements are strengthened with imported base in bringing the road width to modern standards.

The base is topped with a curing seal of emulsified asphalt. Surface includes a 2-in. thick asphaltic concrete levelling course and a 2-in. thick wear-

(Continued on page 24)



ASPHALT TRUCKS are weighed to establish payment due contractor.

ing course of similar material. Both levelling and wearing course use the same type asphalt.

Each two-lane portion of the road is 24-ft wide with an 8-ft paved shoulder.

The surface material is mixed in a 5,000-lb plant located near a river-bed aggregate source about 12 miles from the job. All of the paving for the first phase of the work was accomplished during a two-week period of good weather in late October. The contractor used extended and Saturday shifts to take advantage of the weather with maximum daily production reaching 2,200 tons of surfacing.

Although good paving weather was not counted on in the test program, it will certainly help guarantee better final results.

Needless to say, extensive data are being taken on all phases of the paving work to aid in evaluating results that may be obtained. And other data—such as some basement soil deflections—are recorded as further evaluation aids.

• **The new standards**—A comparison between California's old and new paving grade asphalt specifications is shown in an accompanying table. The new standards were discussed by F. N. Hveem, materials and research engineer for the California Division of Highways, in a paper presented at the 33rd annual conference of the Western Association of State Highway Officials in Sun Valley, Idaho, on Sept. 17, 1954. Much of the following discussion is excerpted from that presentation.

• Principal hopes for better asphalts are centered in higher minimum flash point and more rigid penetration requirements—including in the latter a new penetration ratio test.

The flash point test has been shown to have best correlation with durability under road conditions. Minimum values have been established as high as feasible considering the products presently available in California. And the means of measuring flash point has been changed.

Results obtained from the previously used Cleveland open cup flash tester can be improved by addition of silicones, silicones being used in asphalts as anti-foaming agents. The Pensky-Martens instrument now required includes sample stirring to eliminate erroneous results caused by silicones. And the instrument results in a lower flash temperature for a given asphalt. Thus, the increase in minimum flash temperature is even greater than the change in values.

• Second most important standard is the new penetration ratio. This specification is simply that the penetration at 39.2 F under a 200-gram weight for one minute shall be at least 25% of the standard penetration at 77 F (100-gram weight for 5 seconds). According to Hveem, "We would like to raise their requirement to a value of 30 or 35 but so far California producers could not meet such a requirement except with certain crudes."

Penetration after loss on heating is perhaps the third most significant test. No change has been made in method of making this test. But permissible loss on heating has been reduced and penetration after loss on heating has been increased.

The various penetration tests and the loss on heating test are intended to assure asphalts of greater resiliency and life. Hardening of asphalt pavements to the brittle point may be one of the contributing causes of pavement failure.

• The other new test is on viscosity. To safeguard against damage during heating, the new standards require a viscosity that permits ready mixing in the pug mill. This is simply a precautionary specification set up to prevent additions aimed at meeting the high flash point and other requirements that might also make it necessary to heat the asphalt to a point where damage would result in the pug mill.

Solubility in carbon-bisulfide has been abandoned and the carbon-tetrachloride requirement is maintained simply to control the possibility of contamination or adulteration.

The heptane xylene equivalent is also retained with the value lowered five points. This test—the value of which is admittedly debatable—was developed to control addition of

California Specifications for Paving Grade Asphalt

Specification Designation	AASHO Test Method	Grade 85-100 old	85-100 new	120-150 old	120-150 new	200-300 old	200-300 new
Flash point (°F min.)	(1)	425	450	400	425	350	400
Penetration of original sample at 77 F	T49	85-100	85-100	120-150	120-150	200-300	200-300
Loss on heating 5 hours at 325 F (% max.)	T47	2	1	3	1	3	1
Penetration after loss on heating (% of original, min.)	T49	80	85	70	80	60	75
Penetration ratio (% min.)	(2)	.....	25	.....	25	.....	25
Furol viscosity at 275 F (sec.)	.....	.....	75-225	.....	60-180	.....	40-125
Ductility at 77 F (cm min.)	T51	100	.....	100	.....	100	.....
Solubility in CS_2 (% min.)	T44	99.5	.....	99.5	.....	99.5	.....
Solubility in CCl_4 (% min.)	T45	99	99	99	99	99	99
Xylene equivalent (% max.)	T102 modified	35	30	35	30	35	30

(1) Changed from T48 covering Cleveland open cup method to T73 that includes Pensky-Martens instrument.
(2) Ratio of penetration at 39.2 F under a 200 gram weight for one minute to standard penetration at 77 F using AASHO test T49.

cracked asphalts; it is fairly well established that durability of such asphalts is generally poor.

Abandoned is the 77 F ductility test that, with addition of other tests, now serves no useful function.

• **Other uses**—In addition to the test program added to the 6-mile stretch of U. S. 101 construction, the new standards are being used in lieu of the old on a few other highway jobs.

All concerned are hopeful for improved results. But California officials feel fairly certain that even more changes will be made in the paving grade asphalt specifications. As Hveem puts it, "As the manufacturers develop experience and demonstrate their ability to meet this specification, it would seem proper and logical to tighten up on the test requirements still further and, even more important, to invent, develop or copy new and perhaps radically different test procedures to substitute for those now in use."

All of the work described in the foregoing is being done by the California Division of Highways, George T. McCoy, state highway engineer. Development of the new standards has been under direction of F. N. Hveem, materials and research engineer, assisted primarily by Ernest Zube, research laboratory paving section head, and John Skog who had direct charge of the investigative work that established relationships for the new standards.

Construction of the asphalt test road on U. S. 101 is a project of the engineer of District V, E. J. L. Peterson. C. I. Brown is assistant district engineer for operations and Lee Bunce is resident engineer.

Company Files for Permit To Build $87-Million Dam

The Washington Water Power Co. has filed an application for permission to build an $87-million concrete and earth-fill dam at Noxon Rapids, Mont. on the Clark Fork River.

The Noxon project, 23 mi. upstream from the company's new Cabinet Gorge Dam, will double the river's power production for WWP.

WWP plans a power plant with a rated capacity of 328,000 kw, capable of producing 385,000 kw. It forecasts a construction start by July, if the Federal Power Commission approves the application quickly.

The plans call for an 1,120-ft spillway and powerhouse intake section of concrete, flanked by two earth-fill wings bringing the total length of the dam to 5,220 ft. The wings will be 900 ft on the northeast bank and 3,200 ft on the southwest bank.

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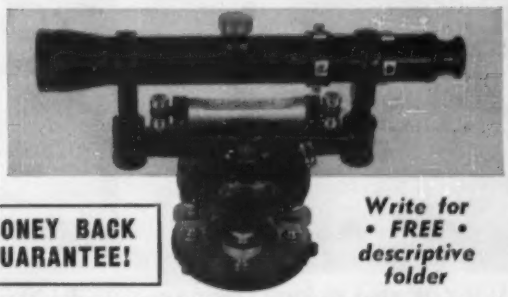

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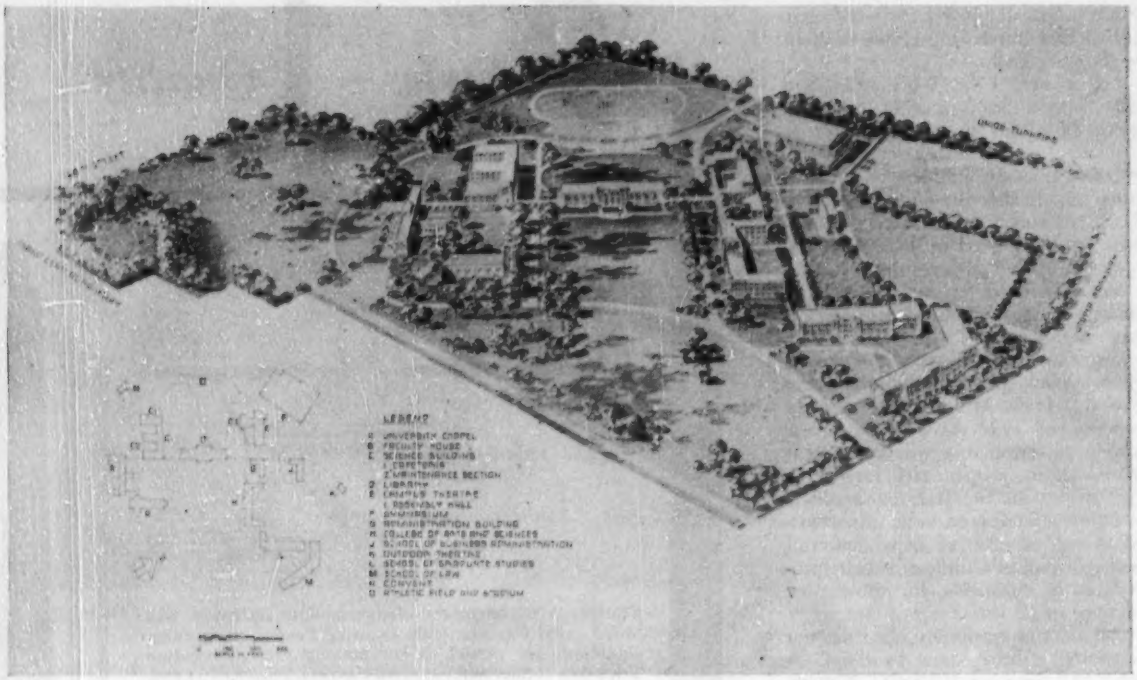


COMPLETELY PLANNED, new campus layout for St. John's is designed to occupy high 100-acre golf course site.

University's 13-building Program Pulls Drawstring on Subway Campus

After 84 years that have seen enrollments grow from 47 students to 7,000, St. John's University, of Brooklyn, N. Y., has started a $27-million building program on a golf course site in Jamaica, (Queens) N. Y.

When completed, the school will be an integrated unit for the first time almost since its inception. With its buildings now spread over the width and length of New York's huge Borough of Brooklyn, expansion has worked more hardship on this institution than on many of its contemporary houses of learning.

The first of 13 buildings is under construction, and completion of the over-all program is said to be assured for a centennial celebration in 1970.

Preliminary planning began in 1948 when university officials commissioned Henry V. Murphy, Brooklyn architect, to develop a master plan. Murphy, assisted by Gabe Avallone of his staff, made extensive surveys of the tract and submitted a three-level layout that was accepted immediately.

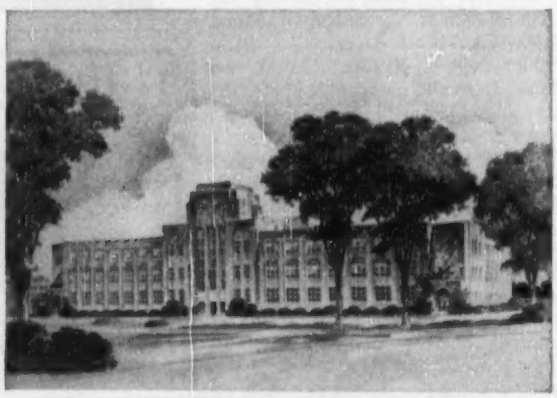
• **Layout**—Using existing site contours on the 100-acre golf-course tract—elevation range 70 to 130 ft—Murphy and Avallone divided the university buildings into groups at the three levels, but provided covered arcades connecting all buildings. At the highest elevation will be the five main campus buildings—the Liberal Arts building (St. John's College) is now under construction.

The first group is planned with these priorities and cost data:

Liberal Arts Building	$3 million
Science Building	$4.5 million
Faculty House	$1 million
Library	$3 million
University Chapel	$1 million

Main floors of all five buildings in the main group are at the same elevation, allowing them to be interconnected by means of covered walkways

FROM FRAME FARM HOUSE where St. John's College ministered to the needs of only 47 students in 1870 . . .



. . . TO NEO-GOTHIC STRUCTURES that will house more than 10,000—that's chronology of a century of progress.

HENRY V. MURPHY—his first layout plan was unanimously accepted as tendered.

faced with the same granite and limestone as the buildings. All walkways are designed on 18-ft modules and will carry heating lines in tunnels underneath the arcade floors.

A central heating plant in the Science building will serve all other structures. This building and the theater-auditorium will form the transitional structures between interconnected units at different levels. The former, will have three floors below grade at one end and lie at grade at the other.

• **Planning considerations**—Basic architectural theme of the campus was originally discussed in terms of contemporary lines in brick, but a functional modern Gothic design in stone was thought to be more in the spirit of St. Vincent de Paul, patron of the Vincentian Fathers, founding order of the institution.

Focus of the entire campus will be an oval terrace that will be accessible from the Theater-Auditorium, Library building and Science building. The stadium, planned to lie against a natural embankment of the former golf course also will be accessible from the terrace at its uppermost tier.

The stadium will provide space for 8,000 persons and 1,000 cars.

Frame for all structures including the one now under construction will be structural steel. All corridors and classrooms will be finished in tile.

Windows in all buildings will be aluminum with more glass area than is usually provided in conventional Gothic structures. All artificial light will be by fluorescent fixtures.

The remaining two structures to be built under the 13-unit program will be a convent and a 15-story structure planned for expansion of the St. John's Downtown Division, in Brooklyn.

General contractor for the Liberal Arts building under construction is the Veit Construction Co., also of Brooklyn.

Priorities and costs for subsequent buildings have been set up as follows:

Business Administration Building	$1 million
Administration Building	$500,000
Downtown Division Building	$2 million
Gymnasium	$2.5 million
Campus Theater-Auditorium	$500,000
Convent	$300,000
Athletic Field and Stadium	$1 million
Graduate Studies Building	$1 million
School of Law Center	$1 million

In addition, there will be an outdoor theater that is estimated to cost about $150,000.

LIBERAL ARTS BUILDING, now under construction, straddles crest of hill to mark upper level location of the five main buildings of the capitol group.

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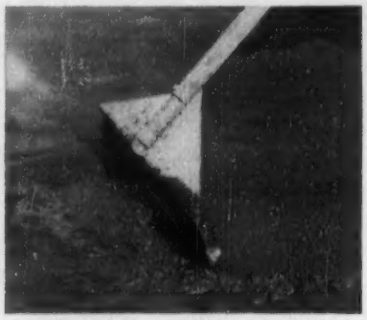
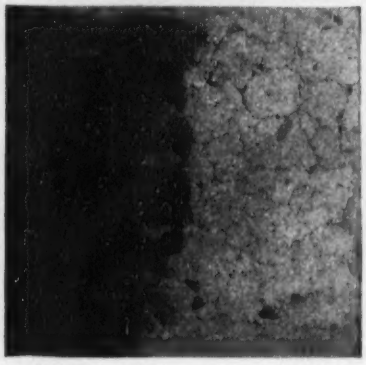
EMULSIFIED ASPHALT SLURRY worked into cracked asphalt pavements by squeegee has been proven to be an effective maintenance aid.



SQUEEGEE forces slurry into crevices.



TREATED AREA on left demonstrates sealing ability of the slurry material.

Slurry Seal Smooths Out Cracked Asphalt

Rough, cracked asphaltic pavement is being sealed in Los Angeles County, Calif., by an application of emulsified asphalt slurry. County road maintenance crews under the direction of County Engineer Wm. J. Fox have been experimenting with the new technique on an extensive scale for the past year.

The slurry consists of a mixture of fine aggregate, water and a slow-setting, mixing grade, emulsified asphalt with a relatively hard base (Bitumuls SS-2). After a number of experiments, county engineers found that the most satisfactory aggregate is ¼-in. or smaller, such as crusher waste, plaster sand or a blend of these two materials.

Although no attempt has been made at accurate control, the emulsified asphalt content averages about 20%, based on the aggregate weight, or roughly 2½ gal per cut ft of aggregate. With dry aggregate, equal quantities of water and asphalt emulsion are generally required to obtain the best consistency in the mix. If the aggregate is damp or wet, the water content of the mix is adjusted accordingly.

In operation, a motorized plaster mixer is attached to the rear of a maintenance truck. Tanks for the asphalt and water supply are mounted back of the cab, and aggregate is loaded into the body of the truck. The slurry is batched by a man on the truck and discharged through a sluice gate from the bottom of the mixer as the truck moves ahead slowly.

In extremely hot weather or when the surface is dry, the pavement is dampened prior to the application of the slurry. The slurry is then spread over the pavement area either by hand squeegees or a spreader box. When squeegees are used, they are reversed and the material is pushed ahead.

A spreader-box can be attached to the truck by cable. The box is very simply constructed with side-boards, a back-board that is slightly raised, and a brace across the front. An improvement is a strip of rubber belting mounted on the back-board to act as a squeegee. The width may be from a few feet to a full traffic-lane.

The squeegee action works the slurry down into the cracks and fills up the rough spots in the old pavement. Any pot-holes are patched ahead of the slurry application. Since the slurry is applied in a thin layer (⅛-in. or less) serious "washboard" conditions cannot be corrected by this method.

The treated area may normally be opened to traffic within one hour because the application dries quickly. Records show that in some cases, automobiles traveling over the fresh material has resulted in no serious "pickup." This factor has been of extreme value because it permits near-normal traffic flow while maintenance operations are going on.

Cost figures with maintenance forces have varied from $0.06 to $0.15 per sq yd, depending upon the thickness required. About 65% of the total cost goes for labor, 10% for equipment, and 25% for materials.

Use of the slurry seal technique for surface treatment has suggested many other uses such as leveling uneven areas, smoothing old surfaces, and improving grade line of gutters to eliminate standing water.

Twin Cableways Used To Set Crest Gates

Dual cableways have been installed at the Shawville plant of the Pennsylvania Electric Co. to operate the crest gates on the dam that forms the pool from which the plants draws condensing water. That dam lies across the West Branch of the Susquehanna River. Crest gates are required on it to maintain a proper pool level during the periods of low flow and to permit the passage of flood water without raising the river surface to a dangerous level during periods of high flow.

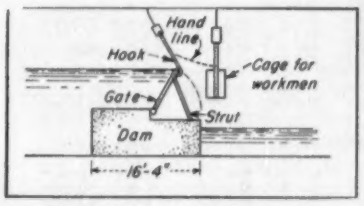
The crest gates are of the shutter type, each unit being 5 ft wide and 6 ft high, hinged to the dam, as shown in the sketch, and supported in raised position by a movable strut. The dam is 270 ft long, requiring 54 gates.

Each gate is independent of the others and can be opened or closed as flow conditions in the river require.

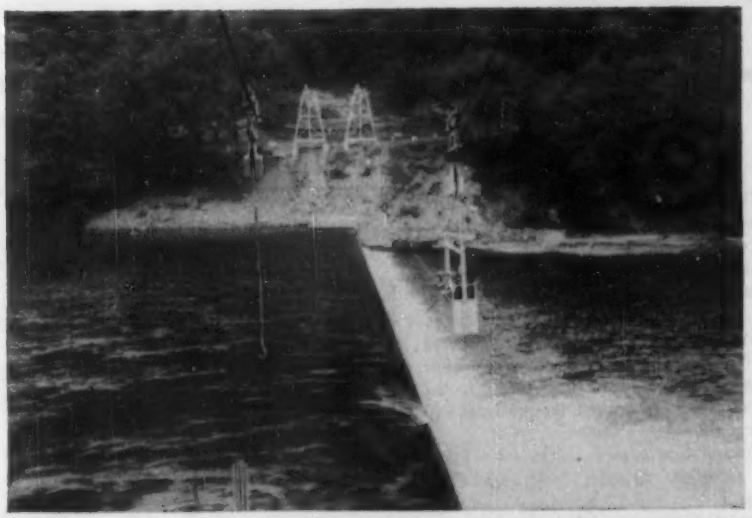
The cableways have a span of 370 ft. Two hoists, powered by a single 40-hp motor, operate the cableways. Each has its own hoisting drum and conveying drum. Both cableways are capable of a hook load of 10,000 lb. and can be operated simultaneously or separately. The hoists raise the load at 100 fpm and convey at 300 fpm.

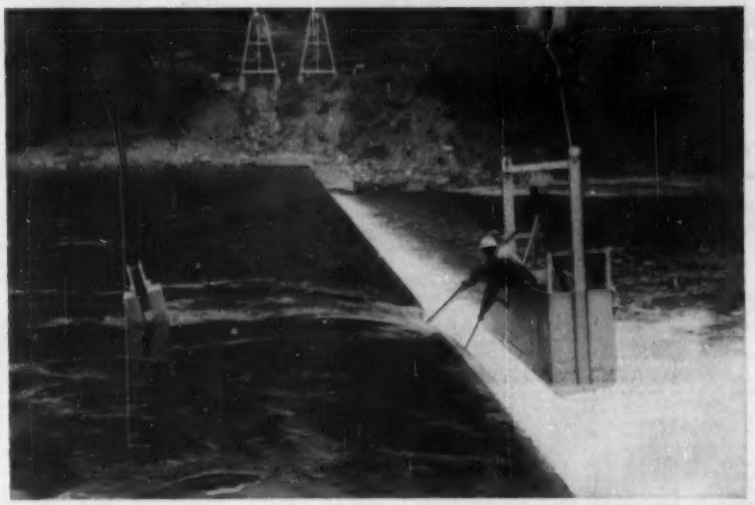
In the hoist house, all operating levers are on a single quadrant stand so located that the entire dam can be seen by the operator.

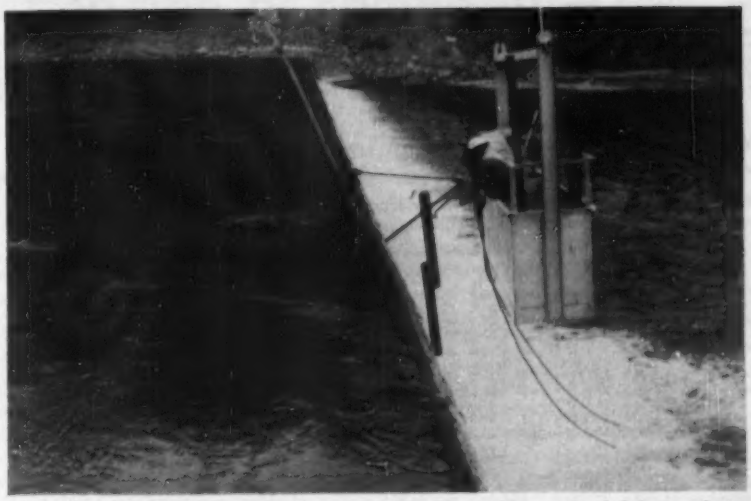
The upstream cableway carries a hook for raising or lowering the gates while the downstream cableway carries a cage for the men raising or lowering the gates.



CREST GATES of the Shawville dam are raised or lowered by a hook operated by one cableway which is attached by workmen in a cage carried by the second cableway.







THREE STAGES of the gate raising operation. Two cableways (top) bring workmen and the operating hook, controlled by hand line, out to an open gate. There a pole is used to steady cage while gate hook is set. Then the gate is raised (lower picture) and strut is set, the gate being raised slightly above its final position at the last instant to set the strut into its sockets. (Photos by Sauerman Bros., Inc.)

THE 30-DAY FORECAST of the U. S. Weather Bureau for the period from mid-December 1954 to mid-January 1955 calls for temperatures to average below seasonal normals over the southeastern quarter of the nation and also in the Great Basin. Above normal temperatures are expected in New England, the northern plains, Northwest, and extreme Southwest. In other areas near normal temperatures are indicated.

Precipitation is expected to exceed normal along the Atlantic Coast and in the Great Lakes region. Subnormal amounts are predicted for the rest of the country except near normal along the southern border and in the Great Plains.

Observed weather in 20 cities, compared with normals

	Precipitation, inches				Temperature, degrees			
	Nov. 1954	Departure fr. normal	11 Mos. 1954	Departure fr. normal	Mean Nov. '54	Departure fr. normal	Av. daily maximum	Av. daily minimum
Atlanta	4.12	+0.71	28.80	−15.81	49.5	−2.4	59.1	39.8
Baltimore	2.42	−0.54	23.35	−14.47	43.4	−2.2	52.1	34.7
Birmingham	3.98	−0.02	34.88	−13.39	50.7	−1.3	62.4	39.0
Boston	5.52	+2.03	56.92	+21.53	44.4	0.0	51.3	37.4
Chicago	1.80	−0.53	44.15	+13.36	42.5	+3.0	50.2	34.8
Cincinnati	1.56	−1.50	34.59	−1.86	44.3	−0.3	52.4	36.2
Cleveland	1.34	−1.32	37.32	+7.53	42.6	+0.9	50.0	35.2
Dallas	1.56	−0.87	25.55	−6.25	56.0	+0.2	68.4	43.6
Denver	0.44	−0.28	5.68	−7.25	46.2	+4.9	58.6	33.7
Detroit	1.41	−0.77	31.78	+2.94	41.2	+1.1	47.8	34.6
Kansas City	0.04	−2.13	26.85	−6.96	48.9	+4.6	58.7	39.0
Los Angeles	2.03	+1.00	12.83	+1.40	64.3	+2.2	74.7	53.8
Minneapolis	0.61	−0.83	23.53	−0.36	38.3	+5.3	46.0	31.0
New Orleans	2.88	−1.13	44.03	−14.93	60.4	−2.1	68.1	52.6
New York	4.60	+1.51	34.16	−4.80	45.9	−0.4	52.1	39.7
Philadelphia	4.05	+0.97	34.11	−4.56	46.4	−1.4	52.9	39.8
Pittsburgh	0.96	−1.65	36.83	−1.69	44.8	−0.3	51.4	37.1
St. Louis	1.37	−1.35	27.73	−7.58	47.4	+1.4	54.9	39.8
San Francisco	0.55	+0.28	12.18	−2.26	56.6	−0.6	61.9	51.3
Seattle	6.92	+2.46	33.73	−7.15	51.3	+4.3	55.2	47.4

T—Trace (Less than 0.005 inches)

Precipitation range in 20 cities, in inches

Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.
Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

City	Dec.	Mid Dec.-Mid Jan.	Jan.	Mid Jan.-Mid Feb.	Feb.	Mid Feb.-Mid Mar.	Mar.	Mid Mar.-Mid Apr.	Apr.	Mid Apr.-Mid May	May	Mid May-Mid June	June	Mid June-Mid July
Atlanta	3.46/5.30	3.42/5.32	3.39/5.33	3.38/5.50	3.36/5.67	3.40/6.00	3.43/6.33	3.12/5.72	2.82/5.10	2.48/4.72	2.14/4.33	2.50/4.38	2.87/4.43	2.93/4.62
Baltimore	2.41/3.73	2.59/3.85	2.77/3.96	2.57/3.68	2.36/3.39	2.48/3.76	2.59/4.13	2.59/4.17	2.58/4.20	2.76/4.30	2.94/4.40	2.73/4.42	2.52/4.44	2.57/4.71
Birmingham	3.71/5.75	3.75/5.58	3.75/5.40	3.61/5.64	3.47/5.88	4.18/6.26	4.48/6.63	3.91/5.85	2.94/5.07	3.05/4.81	3.16/4.55	2.90/4.70	2.64/4.84	3.29/5.18
Boston	2.89/4.20	2.83/4.12	2.77/4.05	2.70/3.99	2.64/3.93	2.79/4.22	2.94/4.50	2.66/4.45	2.39/4.40	2.58/4.29	2.39/3.50	2.42/3.84	2.09/3.50	2.35/3.76
Chicago	1.32/2.45	1.30/2.28	1.29/2.10	1.40/2.16	1.52/2.23	1.76/2.67	1.99/3.11	2.09/3.12	2.19/3.13	2.24/3.56	2.16/4.00	2.29/3.83	2.42/3.67	2.46/3.66
Cincinnati	2.29/3.28	2.32/3.54	2.34/3.80	2.07/3.40	1.80/3.00	2.10/3.64	2.39/4.29	2.66/3.94	2.34/3.60	2.42/3.85	2.49/4.10	2.59/4.30	2.69/4.50	2.54/4.10
Cleveland	1.70/2.56	1.85/2.58	1.99/2.60	1.58/2.32	1.51/2.43	1.81/2.71	2.10/2.98	2.15/3.13	2.20/3.27	2.27/3.38	2.33/3.49	2.17/3.53	2.00/3.56	2.24/3.82
Dallas	1.09/3.00	1.24/3.05	1.39/3.10	1.49/2.70	1.59/2.30	1.96/3.08	2.34/3.86	2.50/4.68	2.66/5.50	2.82/5.38	2.99/5.25	2.39/4.85	1.79/4.45	1.59/3.72
Denver	0.39/0.77	0.28/0.64	0.18/0.50	0.26/0.54	0.34/0.58	0.46/0.84	0.59/1.10	0.96/1.75	1.34/2.40	1.48/2.65	1.62/2.90	0.64/2.32	0.67/1.75	0.94/1.88
Detroit	1.64/2.60	1.63/2.50	1.62/2.40	1.56/2.45	1.51/2.50	2.14/2.64	1.77/2.78	1.78/2.76	1.79/2.73	2.14/3.20	2.49/3.67	2.66/3.88	2.84/4.10	2.46/3.90
Kansas City	0.77/1.55	0.68/1.48	0.59/1.42	0.80/1.66	0.99/1.90	1.29/2.40	1.59/2.90	1.99/3.15	2.39/3.40	2.82/4.40	3.24/5.40	3.42/5.82	3.61/6.25	3.19/5.47
Los Angeles	1.14/2.70	1.19/3.00	1.24/3.30	1.12/3.25	0.99/3.20	1.06/3.08	1.13/2.95	0.68/1.92	0.22/0.90	0.14/0.62	0.05/0.35	0.02/0.18	0.00/0.02	0.00/0.01
Minneapolis	0.57/1.30	0.60/1.19	0.64/1.08	0.58/1.08	0.52/1.08	0.75/1.38	0.98/1.67	1.34/2.14	1.69/2.60	2.16/3.29	2.64/3.98	2.89/4.49	3.14/5.00	2.64/4.50
New Orleans	3.24/5.17	3.36/5.28	3.49/5.40	3.14/5.05	2.79/4.70	3.00/5.00	3.22/5.30	2.94/5.15	2.66/5.00	2.65/5.12	2.64/5.25	3.18/5.88	3.72/6.50	4.54/6.95
New York	2.64/3.77	2.55/3.71	2.46/3.65	2.41/3.88	2.36/4.10	2.35/4.08	2.34/4.05	2.40/3.92	2.47/3.78	2.50/3.90	2.54/4.02	2.45/3.91	2.36/3.80	2.81/4.25
Philadelphia	2.64/3.90	2.60/3.80	2.57/3.70	2.57/3.69	2.57/3.68	2.60/3.84	2.62/4.00	2.56/3.91	2.49/3.82	2.44/4.11	2.39/4.40	2.54/4.25	2.69/4.10	2.94/4.24
Pittsburgh	2.09/3.27	2.12/3.20	2.14/3.13	1.96/2.98	1.77/2.83	2.06/3.15	2.34/3.47	2.32/3.44	2.29/3.40	2.39/3.58	2.49/3.75	2.68/3.98	2.86/4.20	2.79/4.35
St. Louis	1.54/2.80	1.52/2.75	1.39/2.70	1.48/2.80	1.57/2.90	1.92/3.42	2.27/3.95	2.43/3.88	2.59/4.10	2.86/4.65	3.13/5.20	2.96/5.25	2.79/5.30	2.60/4.78
San Francisco	2.19/5.25	2.34/5.12	2.49/5.00	2.24/4.86	1.99/4.71	1.96/4.13	1.94/3.55	1.30/2.54	0.67/1.54	0.44/1.12	0.18/0.69	0.09/0.37	0.00/0.05	0.00/0.03
Seattle	4.17/5.89	4.14/5.57	4.12/5.25	3.34/4.92	2.55/4.60	2.18/4.02	1.81/3.43	1.76/3.16	1.64/2.90	1.53/2.45	1.42/2.00	1.09/1.86	0.76/1.73	0.48/1.20

Mean temperature range in 20 cities, in degrees F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.
Computed by U. S. Weather Bureau (based on historical records of actual temperature)

City	Dec.	Mid Dec.-Mid Jan.	Jan.	Mid Jan.-Mid Feb.	Feb.	Mid Feb.-Mid Mar.	Mar.	Mid Mar.-Mid Apr.	Apr.	Mid Apr.-Mid May	May	Mid May-Mid June	June	Mid June-Mid July
Atlanta	44.0/46.0	48.3/50.3	43.5/45.5	44.0/46.4	45.1/47.9	47.5/50.1	51.2/53.8	55.9/58.0	60.9/62.6	64.9/66.3	69.0/70.5	73.5/74.6	77.3/78.1	78.5/79.3
Baltimore	35.8/37.8	34.2/36.1	32.9/35.7	32.4/36.0	34.6/38.0	38.1/41.7	42.0/45.7	46.6/49.4	51.9/53.6	57.5/59.0	63.4/64.6	68.2/69.5	72.5/73.8	75.2/76.6
Birmingham	44.3/46.5	48.4/46.1	43.5/46.5	44.4/47.6	46.0/49.4	48.8/51.7	52.4/54.7	56.6/58.5	61.1/62.6	64.6/65.3	68.4/70.2	72.4/74.5	76.8/78.1	78.4/79.7
Boston	31.2/34.0	28.9/31.9	27.9/31.2	26.4/29.6	27.8/30.0	31.4/34.0	35.6/38.6	41.1/43.3	46.7/48.3	51.5/53.1	56.7/58.4	56.8/58.6	66.3/68.1	69.6/71.1
Chicago	25.7/30.3	25.7/28.5	23.2/28.1	23.1/28.1	24.7/30.0	29.2/34.2	34.6/39.1	40.9/43.8	47.5/48.8	52.7/54.7	57.9/60.5	63.1/66.1	68.0/71.2	71.6/74.0
Cincinnati	31.4/35.2	30.1/34.4	29.8/34.6	29.9/34.4	31.6/36.0	35.2/39.2	39.6/43.1	45.4/48.1	51.4/53.3	56.4/58.6	61.5/64.0	65.2/67.0	71.2/73.0	73.4/75.2
Cleveland	29.3/32.9	27.3/30.9	26.5/30.3	26.0/29.6	26.2/29.7	29.8/33.7	34.7/38.8	40.3/43.2	46.2/47.8	51.8/53.9	57.9/60.3	63.5/65.7	68.2/70.2	71.2/73.0
Dallas	47.0/49.3	44.8/47.1	44.1/47.5	45.8/49.2	48.8/52.2	51.9/55.6	55.5/59.6	60.1/63.7	64.2/67.3	68.4/71.1	72.6/75.0	77.2/78.8	81.1/82.2	82.3/84.8
Denver	30.5/35.5	28.3/31.4	27.0/30.0	27.9/31.5	30.5/34.7	33.1/36.8	35.9/39.1	40.4/43.2	46.3/48.6	51.1/53.4	55.2/57.4	60.0/62.1	65.4/67.5	69.7/71.5
Detroit	27.9/30.9	25.6/28.5	23.8/27.7	24.2/27.8	24.6/28.9	27.9/32.1	33.1/37.2	39.3/42.1	45.6/47.1	51.0/52.8	56.5/58.7	62.3/64.4	67.3/69.9	70.6/72.1
Kansas City	32.4/35.9	30.4/33.0	30.0/31.9	30.2/33.6	32.2/37.1	37.3/41.2	41.9/45.9	48.6/51.3	54.7/56.7	59.9/61.7	64.6/66.4	69.4/71.2	74.2/76.0	78.0/79.6
Los Angeles	54.9/56.5	53.4/54.8	52.7/54.0	52.6/54.2	52.9/55.1	54.1/56.2	55.4/57.4	56.8/58.4	58.1/59.7	58.8/61.3	61.4/62.8	62.5/64.0	63.9/65.4	65.4/67.0
Minneapolis	16.2/22.3	13.8/18.4	13.4/16.5	13.3/17.7	15.0/20.8	21.7/25.9	29.9/32.5	37.3/40.3	44.7/47.9	51.3/54.4	57.2/60.2	62.2/64.9	66.6/69.1	70.3/72.5
New Orleans	54.6/56.8	53.2/56.0	52.5/56.0	54.0/61.4	55.9/59.3	57.6/60.8	60.6/63.0	63.4/65.7	67.4/69.1	70.7/72.1	73.8/74.9	77.0/78.1	79.9/80.9	81.0/81.9
New York	34.6/37.5	32.8/35.2	32.0/34.6	30.9/33.8	30.9/33.6	34.1/36.8	38.7/41.3	43.6/46.0	49.0/51.0	54.6/56.3	60.6/62.1	66.9/67.5	70.4/72.2	73.6/75.0
Philadelphia	35.1/37.3	32.7/35.4	31.8/35.0	31.1/34.3	32.3/35.3	36.4/39.2	40.8/43.5	45.6/47.9	50.8/52.6	56.2/58.0	62.3/64.0	67.5/69.2	71.5/73.1	74.1/75.4
Pittsburgh	29.5/32.6	27.8/31.0	26.9/30.1	26.4/30.5	26.9/32.0	30.5/33.4	36.0/40.6	43.9/46.5	48.0/49.8	53.1/55.1	58.7/60.9	63.5/65.8	67.4/69.7	70.2/72.0
St. Louis	33.3/37.1	30.0/35.1	30.1/34.7	31.3/35.7	33.7/38.1	37.8/41.8	42.9/46.3	48.6/51.5	54.5/57.0	59.8/62.3	64.0/66.6	68.7/71.5	73.5/76.2	76.9/79.0
San Francisco	48.7/50.2	47.1/48.9	46.9/49.1	47.3/50.8	50.0/51.7	51.0/52.8	52.4/55.1	52.4/54.2	53.2/55.0	54.3/55.9	55.9/57.4	57.5/59.1	58.8/60.5	59.6/61.0
Seattle	39.4/40.7	37.7/39.0	37.2/38.5	38.2/40.0	39.7/42.0	41.7/43.3	43.6/44.7	45.8/47.2	48.2/49.9	51.0/52.9	54.2/56.3	56.9/58.5	59.3/60.4	61.7/62.7

OFFICE—In V-B's midtown Manhattan office, president Percy Vermilya (left) and vice president Henry Erdmann study plans of New York's Hospital for Special Surgery, while uptown on the . . .

JOB—Senior vice president Earl Norem (left) and vice president Richard Land inspect the steel framework, high above the East River. The firm specializes in institutional and commercial work.

Custom builder in an age of competition

To thousands of passing Yale men, the gargoyles on the Graduate School building on the Yale campus are simply pieces of Gothic decoration. But to people in the New York City building firm of Vermilya-Brown Co., they are personal friends. Some V-B officers and employees served as gargoyle models when the building was put up in the early 1930's. The sculptor, using their photographs as guides, distorted their features to create his grotesque ornaments.

Back in those days, the firm was known as Marc Eidlitz & Son; and one of the company officers considered for gargoyle status was its president, the late Robert Eidlitz, son of the immigrant who founded the firm in New York 100 years ago.

Since 1854, the company has stuck pretty much to institutional and commercial building, mostly in the New York area and in the eastern U. S. Its associations with many of its clients have lasted for a generation or longer. As was customary with this type of business, the firm's work used to be on a negotiated, cost-plus-fee basis. Since World War II, however, the rapid rise in construction costs has led more clients to ask for competitive bids. V-B has reluctantly fallen into step with this trend—and has made a success of it.

According to senior vice president Earl H. Norem, about half the company's work over the past five years has been done on a competitive basis, and during this period the company's volume has steadily increased. Adds Norem: "We make more money on bid jobs than we do from negotiated work. But we like negotiated work better."

• **"Class" builder**—As might be expected of a "class" builder, V-B's annual volume has never been large. Current volume of business is running about $13 million, though it has been higher than that several times in past years. The biggest year was 1931, when volume was $38 million. The firm's biggest single project was the New York Hospital-Cornell Medical College, which at current costs would be more than $60 million. Permanent staff now totals about 100. But V-B is still one of the few top firms of its kind in New York, and it is certainly one of the oldest builders in the U. S.

Probably the most famous of the firm's early buildings that still survive is the Metropolitan Opera House, built by Eidlitz in 1884, when he was in partnership with his son Otto. In 1910, Eidlitz & Son began to handle the construction work of the Rockefeller Institute of Medical Research, an association that has continued to

(Continued on page 32)

the present day. In 1917, it began a 22-year building program on the "new" Yale campus that was to run to $50 million.

By this time the firm's founder was dead, and the partners now included his sons Otto and Robert, and also Percy S. Vermilya, the current president of Vermilya-Brown. In 1918 the partners sold their good will in Marc Eidlitz & Son to a new corporation of the same name, stipulating that the corporate title would be changed within three years after the death of the last surviving Eidlitz in the building company.

• **Name changes**—The change of name duly took place three years after Robert Eidlitz' death in 1935, and the old Eidlitz organization now takes its title from the company's two principal officers in 1938, Vermilya and George B. Brown. Both had been with the old Eidlitz firm since before the turn of the century.

• **Bankers' builder**—The firm has continued to do a wide variety of custom jobs. Since 1910, for instance, Eidlitz and the successor company has either built, altered, or added to most of the buildings around the corner of Broad St. and Wall St., the very heart of U. S. financial power. It built the Bankers Trust Co., J. P. Morgan & Co., Irving Trust Co., and the First National Bank, and did alterations and an addition to the New York Stock Exchange. Not far away, it built the huge block-sized fortress of the Federal Reserve Bank of New York. Nearby are other V-B banks, including the Guaranty Trust Co., Hanover Bank, and the Bank of New York. The firm has had over 200 contracts for banks alone.

But in the past few years much of the company's business has been in hospital, laboratory, department stores, and such institutional projects as churches and museums. In addition to new construction, alteration work is also a substantial part of total volume. This kind of job presents special problems for a builder, since it must fit into the client's existing operation and inconvenience him as little as possible.

Like other builders, V-B generally subcontracts the major mechanical trades and specialties. It prefers to do its own masonry. The firm's own construction force generally does from 30% to 35% of the work.

In addition to the construction force, the V-B organization includes the usual departments found in a building firm: estimating, purchasing, and expediting, plus a cost department and an accounting department. Unlike many contractors, the staff also includes several architects. Though the company does not design structures, it finds having architects' opinions available adds to its service.

• **Typical job**—Here's how these departments go to work on a typical negotiated institutional job:

Soon after World War II, a prominent New York hospital whose original building had been erected by V-B decided the time had come to add several new facilities. It picked an architect, who started conferences with the builder to work out preliminary cost estimates.

A V-B officer was assigned to give general supervision to the project. Through its estimating and engineering departments, and with the help of a project manager and a job superintendent who had specialized in hospital work, V-B suggested materials to cut costs.

Presently a preliminary budget emerged, which was gone over carefully by the hospital's building committee. As often happens with institutional projects, this led to further detailed study by the hospital staff and the trustees of their institution's needs. They finally decided to do about twice as much as they had at first intended. All this, plus the time needed for fund raising, delayed actual construction for about two years after V-B had entered the picture.

When work actually began, it progressed slowly because the hospital had to be kept in full operation. And there were several changes of plan—another characteristic of institutional work—leading to more delays.

• **Bid job vs. negotiated**—Says vice-president Richard I. Land, who supervised this hospital job: "All this illustrates how unsuited a lump-sum contract would have been for this type of work. For instance, on a lump-sum job obtained through highly competitive bidding, where obviously desirable changes develop the contractor would be strongly tempted to 'load' his charges on changes."

"The architect, knowing this, might well hesitate to suggest changes prompted by recent research findings or even discovery of error, fearing criticism from the client of his own ability."

"Whether there are changes or not, the client must often depend on the lump-sum contractor's conscience, since in many cases specifications are vague. But in a fee contract the contractor's interest becomes identical with the client's."

The V-B people are also strong for fixed-fee work on commercial projects, where time and real-estate taxes are important. "In 20 years of experience," says Dick Land, "the reasons for starting commercial jobs before plans and specs were complete were always so compelling that only once can I remember waiting till plans were really finished."

• **Time factor**—"It takes about six months to draw complete plans, and perhaps another six weeks before bids are in on a competitive job. Then perhaps another month or so goes by before the owner makes an award and the contractor can start work. Perhaps all this time interest on money borrowed for land purchase is accruing, and taxes too. In high-tax locations, time saved by a negotiated job means substantial money savings, as well as early income from the project. Often, it's very important to have the project ready in time for a peak sales season."

"Of course it's true," Lamb concedes, "that on a lump-sum job the client is protected against mistakes by the contractor and sudden rises in costs. But he's not protected against mistakes in scheme or design. With the negotiated job, on the other hand, savings in time will usually more than offset a blunder—if any—made by a responsible contractor."

"On a lump-sum contract, the price to the client is guaranteed. But that price may not specifically represent what the client really wants or needs. The builder is in business to make a profit. That being the case, on lump-sum work the owner's interest is of secondary concern to the builder when he must first beat his brains out to compete with anywhere from 3 to 25 general contractors for the job. Obviously, under such conditions he will quite naturally figure the minimum that can be demanded by the plans and specs on which the contract is to be based."

This difference between negotiated work and lump-sum work is so striking that V-B finds it is better to have its job superintendents stick to either one kind of contract work or the other. The firm finds it takes a different type of experience and a different mental approach to run these two types of work in the same shop.

So Vermilya-Brown is ready to handle work in its field on either basis. But it keeps on believing that institutional and commercial clients who insist on competitive bidding are not acting in their own best interest.

INTERNATIONAL

International Building Show Set for Berlin in 1956

An International Building Exhibition to be held in Berlin in the summer of 1956 will be located on the site of an active redevelopment project designed to transform the devastated Tiergarten area into a model residential community.

The project's construction schedule will be arranged so that homes, apartment houses, schools, churches, streets, bridges and other facilities will be in various work stages to afford visitors a convenient means of evaluating design features, materials and building methods. Both German and foreign architects will participate in design and planning.

Temporary pavillions, housing foreign exhibits, will be arranged along a "Street of Nations" running through the redevelopment area. West German and West Berlin exhibits will feature a review of the gigantic reconstruction progress over the post-war decade.

Fronting the Soviet sector border—right at the Brandenburg Gate—the model community will serve as a sort of showcase of western accomplishments. The redeveloped area will include 1,500 dwellings, ranging from single-family houses to large apartment blocks, together with schools, churches, and a hospital. The wide-open spaces of the Tiergarten will enable planners to incorporate spacious garden and park areas in their layout and thus exemplify the community planning aspect of the exhibition.

Chemical Company to Build $65-Million Plant in B. C.

Celgar Development Co.—a subsidiary of Canadian Chemical & Cellulose Co.—has presented working plans for a proposed forest management license, as a prerequisite to going ahead with a $65-million wood manufacturing project at Castlegar, B. C.

The plans cover about 1,000,000 acres on watersheds of the upper and lower Arrow Lakes, and on the Columbia River from Arrowhead to Mica Creek.

So far, the only detail of the development made public is that a Kraft pulp mill will be one of the key units to be built at Castlegar.

International Briefs

• **Yukon facelifting**—Plans are being drawn up for a $3-million Northern Health Service Hospital at Whitehorse, Canada—gateway to the Yukon. The project, to be built on a new site on the east bank of the Lewes River, would involve construction of a $75,000 highway bridge across the river and would open up a 3,000-lot area for residential development. Due to the present layout of the town, there is no room for expansion and building lots cost as much as $10,000.

• **Oil city housing**—Venezuela's National Housing Institute (formerly called the Workers' Bank) will spend $21.3 million on housing in the western oil city of Maracaibo. Some 1,300 homes will go up at La Trinida, a new urban site. And when construction of the La Pomona urbanization project is completed, 100 more homes will be built alongside it.

• **Construction near Kitimat**—Kitimat Pulp & Paper Co. (backed by Powell River Co. and Aluminum Co. of Canada) is seeking a forest management license to permit construction of a $25-million pulp mill and a $45-million paper mill at Minette Bay, about 5 mi from the Kitimat aluminum smelter. Once British Columbia approves the application, the company will undertake a full one to two year survey.

• **Contractors' choice**—Under a new Mexican law, all buildings over five stories high must provide parking facilities for tenants or pay fines. But a substantial portion of contractors on 67 buildings over five stories now under construction in Mexico City have paid heavy fines rather than build the parking facilities. So far, over $50,000 in fines has been collected.

• **Industrial island**—Construction is under way on three major phases of the development on the $226-million Annacis Island industrial estate in the Fraser River near New Westminster, B. C. The phases: (1) roads, sewers, water supply and other services; (2) foundation preparation for the first permanent building—the administrative block; (3) a 1,200-ft bridge-causeway between Annacis and nearby Lulu Island. The 1,200-acre island will offer manufacturers custom-built factories on a rental basis (ENR, May 27, 1954, p. 49).

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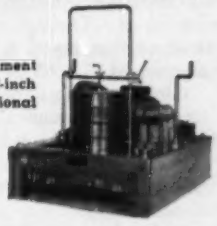

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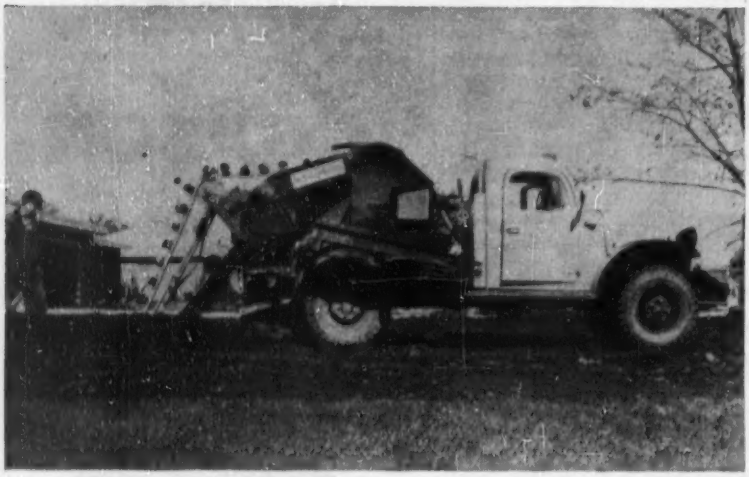


Low-clearance Ditcher Travels Fast, Permits Fast Change of Cutting Width

The Model 711—a truck-mounted ditcher—has been added to the Barber-Greene line-up. Designed primarily for utilities companies, the ditcher is equally adaptable to use by contractors.

The unit is mounted on a four-wheel drive Dodge that offers a 45-mph road speed plus the other features of the truck unit—fully enclosed cab, lights, regular truck steering, etc.

Either of two digging booms may be used. One has a 5-ft digging depth, the other 3½ ft. Through a unique tooth design either boom is convertible to digging 8¼, 12, 15 or 18 in. in width. Change from one digging width to the other involves only the substitution of one set of teeth and cutter bars for another. The bucket line chain and sprockets remain unchanged.

A hydraulic drive mechanism permits an infinite range of forward speeds from 0 to 13 fpm controllable by a single valve lever. The crowd speed range coupled with three bucket line speeds provide digging combinations to cover a wide variety of operating conditions. The bucket line is protected by a spring-actuated friction clutch overload release.

The operator can handle all the machine controls while seated in the cab or through a duplicate set of controls at the side of the unit.

Overall height for both digging and traveling has been held as low as possible. Operating, the height is 6 ft 8 in. and the boom may be carried in this position for short distances. For long hauls it is recommended that the boom be folded upward—an operation said to take only a few seconds. In this "up" position the overall height, with 5-ft depth boom, is 10 ft 4 in. and with the 3½-ft boom it is 9 ft.

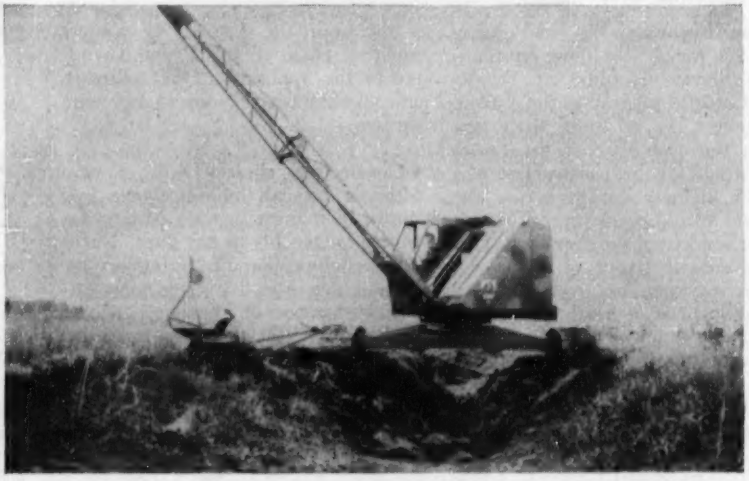
A reversible spoil conveyor can discharge to either side and an auxiliary conveyor can be used to carry the discharge back toward the rear of the machine for easier backfilling. Barber-Greene Co., 400 N. Highland Ave., Aurora, Ill.

Torque Converters Available For Improving Equipment

A line of torque converters for application in heavy-duty, off-the-road, vehicles as well as for stationary power plants used in construction are available in 11 through 19 in. (in 1-in. increments) and 26-in. wheels. Of the single stage type, the line includes rated capacities from 30 to 600 hp.

The basic package consists of a standard, mass-produced, heavy-duty torque converter that is available "off the shelf" to engine and original equipment manufacturers, as well as to operators who want to up-date equipment. Basic accessories included with the unit are a pump, cooler and pressure regulator.

An optional feature offered on the Torcon converter is a "free wheel" mounting for the stator or reaction member. According to the manufacturer, this arrangement gives the unit



Bantam Crane Imitates a Spread Eagle

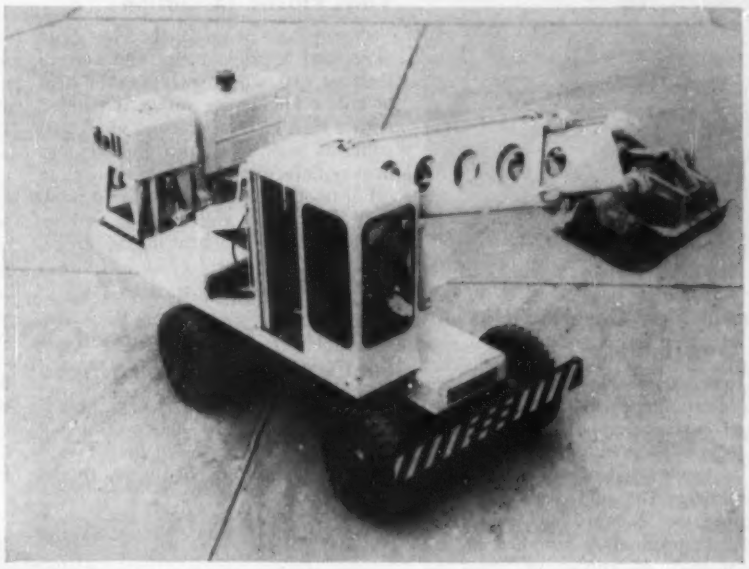
The ¾-cu yd Bantam excavator is now available in a wide-base version for drainage and irrigation work, ditch cleanout, etc. Extensions in 21 and 46-in. widths pin onto the basic crawler frame to provide overall widths up to 16 ft 10 in. Either side may be extended independently of the other for working along ditches that border trees, fences or other obstructions. The extension arrangement permits straddling the ditch and thereby permits faster operation and removes ground bearing pressure from the vicinity of the ditch walls. According to the company, changeover from normal crawler operation to wide-base operation requires only 8 man-hours. Schield Bantam Co., Waverly, Iowa.

the combined advantages of the torque converter and fluid coupling. Under load, it provides the desired torque multiplication, but when the load decreases, and the speed increases, the torque multiplication drops to one and the unit acts as a fluid coupling. As a result, it is said that advantage can be taken of 90% of an engine's speed-horsepower range, as compared with 75% for converters without this feature. The "free wheel" feature is recommended for equipment operating at low load and high speed for an appreciable part of the daily work cycle.

The torque converters have a stall torque ratio of 3-1.

A general-purpose case can be provided that permits multiple means of torque transmission. Provision can be made for a lock-out clutch, dry or disconnect clutch, sprocket, pulley; flange-universal joint combination; industrial shaft without accessory drive; or an industrial shaft with a governor or accessory drive output.

Because the case for the torque converter package is built with standard bolt circles, it is said to be easy to add accessory units and thereby build up almost any desired type of torque transmission system. CLARK EQUIPMENT CO., AUTOMOTIVE DIV., FALAHEE RD., JACKSON, MICH.



Gradall Has Self-Propelled Carrier

A new mobile and maneuverable self-propelled wagon mount has been added to the Gradall line as an item that will be built on order.

The self-propelled carrier has a short wheel base of 108 in. and a turn radius of 21 ft 7 in. to the right and 19 ft 10 in. to the left, making it possible to maneuver in tight quarters.

Controls for operating the wagon are mounted on a panel in the cab and are linked with a remote control air-electric system. Power steering will be standard on all self-propelled Gradalls as will a hydraulic accelerator actuated by foot pedal in the cab.

The unit is powered with a 6-cyl Continental engine developing 97 hp at 3,000 rpm. It has a 244-cu in. displacement and a 20-gal capacity fuel tank, the engine is slung between the frame of the wagon.

The machine has air brakes controlled from the cab, and a dead man brake is also installed as standard equipment as a safety measure. This brake takes hold automatically should either the air or electrical system fail.

The unit has one speed forward and one speed reverse with a top speed of 10 miles per hour. A towbar is supplied with each wagon for use in moving the machine over long distances. Standard width is 8 ft to permit highway travel. The complete unit weighs 30,000 lb. THE WARNER & SWASEY CO., 5701 CARNEGIE AVE., CLEVELAND, OHIO.

New Warco Grader Is a 75-hp Unit

A new Warco motor grader powered by a 75-hp International Harvester UD 350 engine, this Model 4D-75 general duty grader incorporates all the features of the company's heavier units. The rotating saddle permits elevation of the blade to 90 deg on either side, and passage of the blade from one side to the other, without any mechanical adjustment of linkages. Every blade position is reached by operation of hydraulic controls from the cab. W. A. Riddell Corp., Bucyrus, Ohio.

New Two-way Radio System Designed With Extra Power

Operating flexibility and extra power to overcome high audible noise levels are two characteristics claimed for a

(*Continued on page 36*)

Plastic Pipe Covering Has Its Own Built-in Zipper

A prefabricated plastic (polyvinyl chloride acetate) pipe covering, designed to protect insulation against damage, zips on and locks in place with a patented closure said to assure a water- and airtight longitudinal joint. The seal is made by pressing together the compressible interlocking edges. Protektinsul is furnished to size and requires no cutting or fitting on straight lengths. At fittings and pipe joints the insulation may be protected by overlaying 2-in. strips of plastic tape and securing with a vinyl solvent-sealer. Miracle Adhesives Corp., 14 E. 53rd St., New York 22, N. Y.

Safety Shoes Have Foamed Vinyl Plastic Insulation

A new type of safety shoe has been developed for field crews or wherever feet are exposed to extremes of heat or cold. The entire upper is padded with a thin layer of foamed vinyl that contains millions of tiny bubbles but does not absorb moisture, perspiration, oil or odors. Also available in an 8-in.-high field boot and a 12-in. rubber winter-pac, the footwear includes regular steel toe protection. LEHIGH SAFETY SHOE CO., EMMAUS, PA.

Light-Duty Torch Designed For Cutting and Gouging Work

A new cutting and gouging torch has been designed for light work using electrodes up to ¼ in. in dia. Priced at $49.50, this new light-duty model operates from an ordinary DC welding machine and a compressed air line. It removes defects in castings or forgings, cleans the roots of welds and removes welds. It grooves, bevels or cuts mild steel, stainless steel, hard alloys, brass, bronze, Monel and cast iron. The unit is faster than chipping, and said to be cheaper to operate than oxygen equipment. The groove left by the torch is ready to receive the weld, without further preparation.

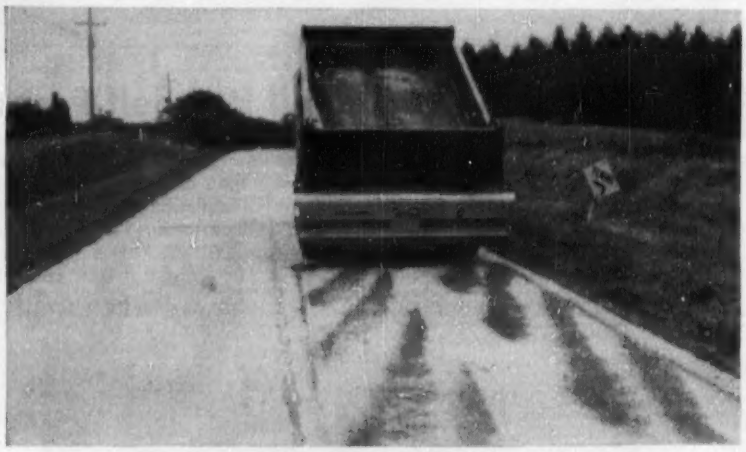
The torch is designated Model G-2 and features a rotating nozzle that permits changing electrode angle to suit the job. Air and current are brought to the torch through a concentric cable reportedly permitting flexibility and ease of handling. Depth of cut is easily regulated, and welding slag does not deflect or hamper cutting action. ARCAIR CO., 423 S. MT. PLEASANT AVE., LANCASTER, OHIO.

new low cost two-way radio system designed for use in repair trucks or other vehicles.

The system, consisting of receiver, transmitter, and power supply with an audio booster amplifier, fits into a standard 15-in. housing and operates interchangeably with either a 6 or 12-v battery installation. Audio output is 10 watts; R.F. output is 25 watts. The speaker is waterproof.

The basic radio may be easily modified or added to in order to provide a custom installation at low cost. For example, it can be equipped with a weatherproof housing and shock mountings; a swivel-mounted speaker can be substituted for the fixed-position one or a cab speaker can be added to enable the user to connect into the circuit cab speaker or marine speaker.

Operation of the vehicles containing the mobile radio systems can be directed from remote distances by using Handie-Talkie transmitters operating through the radio receiver and booster amplifier. The radio is designed for operation on one frequency same as base station or on two frequencies if system requirements so dictate. MOTOROLA COMMUNICATIONS AND ELECTRONICS, INC., TECHNICAL INFORMATION CENTER, 4501 W. AUGUSTA BLVD., CHICAGO 51, ILL.



Spreader Makes Echelon Pattern

Echelon spreading of salt, cinders, sand and calcium chloride for ice control work is now possible with the new Model J highway spreader. The spreader, which offers an option of echelon or blanket spreading, is also equipped to handle sand, chips and pea gravel for seal coat work.

Built to fit any width dump body, the spreader is attached to the truck frame, eliminating any weight on the dump body itself; the dump body may be raised or lowered regardless of the amount of material in the spreader hopper. The unit reportedly requires less than five minutes to hook up. The job consists of hooking two log chains and putting in hitch pins.

Power is provided by two traction tires on the Model J which put the drive in motion when they come in contact with the inside truck dual as the dump body is raised. The drive does not interfere with installation of tire chains on outside duals and operates at speeds up to 30 mph.

According to the manufacturer, the Model J will spread wet or dry materials—from fines and up to 1-in. road stone—forward or reverse—with no controls to install in the truck cab. An automatic transmission for forward and reverse spreading is optional at additional cost. Automatically shifting itself into proper direction it eliminates the use of manual controls. For example, if the truck driver is seal coating in reverse motion and decides he is spreading too thin and wishes to go over it again—he puts his truck in forward gear, and the spreader automatically changes its rotation. HIGHWAY EQUIPMENT CO., INC., 616 D AVE., N.W., CEDAR RAPIDS, IOWA.

H. M. Chance Elected United Engineers Head

Henry M. Chance, II, has been elected president of United Engineers & Constructors Inc., Philadelphia. He was formerly vice president, responsible for the executive management of the company's engineering and construction functions.

A 1934 graduate of the Towne Scientific School, University of Pennsylvania, Chance joined the company as a design engineer in 1936. Prior to becoming vice president, he served as assistant construction manager, and later as assistant to the president.

Buffalo Engineer Appointed To New York Cabinet Post

John W. Johnson, of Buffalo, was appointed last week by Governor-elect Averell Harriman to the cabinet post of Superintendent of Public Works for the State of New York. His appointment had been recommended by the New York State Society of Professional Engineers.

Johnson, 48, is vice president and general manager of Brunner Asphalt & Construction Co., Buffalo, and is president of the New York State Sewage and Industrial Wastes Association.

A graduate of Cornell University, he has spent most of his engineering career in public service. He has served as project estimator and designer for the Public Works Administration and later as superintendent of Buffalo's Bird Island Sewage Treatment Plant. In 1950, Johnson was appointed general manager of the Buffalo Sewage Authority with which he remained until he joined the Brunner company in 1953.

Within the next four years, New York State is expected to spend between $1.5 and $2 billion on highway, hospital, school and other construction.

Former Turner Official Joins Lift-Slab Company

John P. H. Perry has been elected president of the recently-formed New York Lift-Slab Corporation, New York City, which will specialize in lift-slab construction in the New York area.

Perry's appointment was announced by Robert W. Long, managing partner of Long Construction Co., whose Skyhook division is an original licensee of lift-slab construction technique developed six years ago in Texas and now controlled by United States Lift-Slab Corp., Texas.

For many years, Perry was a vice president and director of Turner Construction Company, New York. In 1951 he was appointed chief of construction of the munitions board of the Department of Defense, and the following year served as deputy to the assistant secretary of the U. S. Air Force in charge of construction.

Men and Jobs Briefs . . .

• **Associations**—Indiana Highway Constructors, Inc. reelects **Robert Moellering** (Moellering Construction Co.) president . . . **W. A. Priester** (Priester Construction Co.) becomes president of Master Builders of Iowa . . . **Byron D. Osterloh** is appointed executive secretary and research engineer of Nebraska Concrete Masonry Assn.: **A. J. Hutchinson** (Mutual Construction Co., Ltd.) elected president of British Columbia Contractors' Assn.

• **Business**—Caterpillar Tractor Co. appoints **Robert J. Loskill** managing director of its new subsidiary in Sao Paulo, Brazil . . . **Col. Philip I. Baker** has been named head of the structural division of Carroll E. Bradberry and Associates, Los Altos, Calif., consulting engineers . . . **George A. Clark** is appointed manager of United States Testing Company's new Delaware branch at Claymont . . . **Mason C. Prichard,** former chief of the military construction division, office of the Army's Chief of Engineers, is now executive vice president of The Foundation Co., New York City.

BDSA's Sewerage Division Gets New Director

New director of the Water and Sewerage Industry Division of the Commerce Department's Business and Defense Services Administration is Charles W. Krause, here being sworn in by BDSA administrator Charles F. Honeywell. Krause, manager of Neptune Meter Company's New York district office, succeeds Henry W. Hitzrot, who returns to The Dorr Co. Industry executives serve terms of about six months as division directors of BDSA, peacetime successor of the National Production Authority, to become familiar with government defense plans and procedures.

LEGAL

The Place of Overhead Items In Cost-plus Contracts

A cost-plus contract provided that the owner would pay the contractor for work performed, for the actual net cost of materials furnished and for cartage actually performed by him plus a profit of 10%.

The contractor provided that net cost shall include the following:

"(a) The cost of all labor furnished;

"(b) The actual net cost of all materials purchased as shown by the original invoices;

"(c) The expense incurred by the contractor for cartage of all supplies and other expenses incidental to the erection of the building;

"(d) The cost of rental of any equipment which the contractor deems necessary or beneficial in the erection of the building;

"(e) The cost of insurance including workmen's compensation expended by the contractor in the erection of the building, except subcontracts.

"3. The owner is to make payments to the contractor . . . based upon a detailed itemized statement supported by invoices showing the net cost of materials actually installed in the building, the cost of cartage, the expenditure of labor . . .;

"4. The contractor agrees to keep accurate records and books of account showing the cost of the work performed and materials furnished.

"5. The contractor agrees that in consideration of the services performed by him that the sum hereinbefore agreed to be paid to him as contractor shall be full and complete compensation for the services to be performed by the contractor, it being the understanding between the parties that the contractor shall receive 10% of the total cost of erection of the building as compensation for his services."

During the progress of the work, the contractor submitted to the owner statements showing various charges for labor at an hourly rate. The owner, believing these statements to be correct made payments to the contractor on the basis of these statements. When the building was substantially completed, the owner discovered that the hourly charges set forth in the statements submitted by the contractor were in excess of that actually paid by him and refused to make any further payments to the contractor until an accounting had been had.

The contractor brought an action to recover the balance he claimed was due him under the contract, claiming that since the owner continued to make payments pursuant to the statements submitted by the contractor, such conduct constituted a waiver of any claim that the contractor had made overcharges in the statements submitted to the owner. The court held that there was no legal basis to this claim, since the owner had no knowledge of the overcharges at the times the payments were made. A waiver, it said, is an intentional relinquishment of a known right and as the owner had no knowledge of the overcharges at the times the payments were made, there was no waiver.

The court allowed the owner credit for the overcharges. In its decision it said, in part:

"A review of available cases on cost-plus contracts and analogous cases requires the recognition of the general rules which are to be applied to the instant case. In one of the leading cases on the subject, it is said: The term 'overhead'—including the salaries of executive or administrative officials, interest charges for floating bonds, carrying charges, depreciation, taxes, and the general office expenses, as here claimed—cannot be allowed as an operating charge in 'cost-plus' contracts. To do so would open the doors to a flood of obligations not intended by the innocent words in a contract such as the one before us."

After quoting at length from the available decisions, the court said further: "In the light of the foregoing authorities it is considered that the following principles govern cost-plus contracts: If overhead expense is to be allowed, it must be expressly written into the contract, and the overhead intended to be covered must be defined. If it is written into the contract, it must be established by competent proof. Actual cost must be based on labor and materials that become a part of the complete work. Actual cost cannot be computed upon the average or proportional part of the cost but must be the exact sum expended. Among the items of overhead which cannot be charged as actual cost are unproductive labor, depreciation and use of equipment owned by the contractor, use of equipment and tools, and general office expenses."[1]

While it was not indicated in the court's opinion, it would seem that the contractor attempted to justify the increase charge of labor so as to cover overhead and office expenses. As indicated above, overhead is not allowed as an item of cost in a plus-cost contract unless the contract so specifically so provides.

(1) Nolop v. Spettel, 267 Wis. 245, 64 N.W. 2d 859, Supreme Court of Wisconsin, June 8, 1954.

Right to Make Changes Unnecessary Stop Orders

A contract was entered into for the construction of runways and taxiways on a city owned airport. During the course of the work, the city's engineer issued an unnecessary stop order, which interfered with the performance of the work and increased the cost. The contractor brought an action to recover the damages sustained as a result of the stop order, contending that the same constituted a breach of the contract. The contractor obtained a recovery which was affirmed on appeal.[1]

(1) Hensler v. City of Los Angeles, 268 P. 2d 12, District Court of Appeal of California, March 23, 1954.

Arbitration of Disputes

A building contract prepared on a standard form issued by the American Institute of Architects contained the following provisions: "The architect shall . . . make decisions on all claims . . . relating to the execution and progress of the work or the interpretation of the contract documents"; "all the architect's decisions are subject to arbitration"; . . . "the decision of the arbitrators shall be a condition precedent to any right of legal action."

A dispute arose as to whether certain work constituted an extra and as to the reasonable value thereof.

The court held, over the owner's objection, that the contractor was entitled to have the matter under dispute arbitrated, the court stating: "The language of the arbitration provisions of the contract is sufficiently broad to express an intention of the parties to submit a dispute as the one herein to arbitration. Lipman v. Haeuser Shellac Co., 2898 N. Y. 76, 43 N.E. 2d 817, 142 American Law Reports 1088."

(1) Application of Board of Education, Union Free School Dist. No. 3, Town of Islip, Appellate Division, Second Dept., N.Y., April 12, 1954.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

OBITUARIES

W. J. Barney Dies, Was Engineering, Business Leader

William Joshua Barney, 70, chairman of the board of the W. J. Barney Corp., New York construction firm, and long a leader in both professional and business activities in the construction industry, died last week.

A native of Detroit, Mr. Barney was a civil engineering graduate of the University of the South. After graduation, he began his engineering career in the railroad field, shifted to general contracting, and in 1910 became secretary of the then Department of Docks and Ferries of New York City. He remained with that department until 1913, leaving it to join a board of consultants for the port of Portland, Ore., and later the General Contracting and Engineering Company of New York.

He founded his own firm in 1917, to specialize in industrial construction work. Active in industry affairs, he was an officer of New York's Building Trades Employers' Association; the Building Contractors and Mason Builders Association; the Associated General Contractors, and many other groups.

Otto F. Kopitke, 80, a former building contractor of Toledo, Ohio, died Nov. 25. Before retiring, he was president of Kopitke Construction Co.

Boris M. Shimkin, 86, for many years consulting engineer with the California Division of Highways, died Nov. 30 in San Francisco.

Alfred K. Stillman, 54, civil engineer of Seattle, died Nov. 30. After working with the Washington State Highway Commission and serving with the Army Engineers in World War II, he opened his own office in Olympia. He moved to Seattle in 1951 to form a partnership with DeWitt C. Griffin.

George Wendling, 40, president of Wendling Bros., Dover, Ohio, contracting firm, died Nov. 8.

Charles E. Stricklin, 70, Oregon state engineer since 1930, died in Merced, Calif., Nov. 9. He received his degree in civil engineering from Oregon State College in 1911. Prior to state service, he was a field engineer for railroads and in irrigation work. He was a field agent for the State Water Board until 1918, when he became assistant state engineer.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **N. H., Portsmouth**—HEADQUARTERS and OPERATIONS BLDG.—BA 12/29—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., strategic squadron headquarters and operations bldg., tactical squadron headquarters and operations bldg., tanker squadron headquarters and operations bldg., ENG-19-016-55-57. $900,000-$1,000,000. Plans deposit $10. Koehler & Isaak, 922 Elm St., Manchester, archts. CD 11/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta,
J. R. Cianchette, 120 Main St., Pittsfield, Me. CA $531,762, est. $525,000. constr. 5.739 mi. F. A. Proj. F 051-1 (3), Easton. Bids Dec. 8.

▲† **J. W. Bateson Co.**, Irwin-Keasler Bldg., Dallas, Tex. LB $3,337,350, est. $5,000,000-$5,500,000. eleven multi-purpose hangars, Loring Air Force Base, ENG-19-016-55-41, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Dec. 10. CD 11/22.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Coleman Bros. Corp., P. O. Box 31, Readville, Mass. CA $1,738,669, est. $2,000,000. Sect. No. 1 Contr. 2 Northeast Expressway Maple St. to Revere, Chelsea. CD 11/26, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Westcott Constr. Co., 52 N. Washington St., North Attleboro, Mass. CA $3,294,665, est. $3,000,000. 3 grade crossing eliminations, Mansfield. CD 11/26, under LB.

CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,
Paul Bacco & Son, Inc., 758 Summer St., Stamford, Conn., LB, $777,198, four single span rolled beam bridges at Five Mile River, Richards, Keeler and West Aves. on Greenwich-Killingly Expressway, Proj. 306-01, Norwalk. Bids Dec. 6. CD 11/17.

CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,
Simpson & Whitehouse, Mansfield, Conn., CA, $652,255 b. conc., relocation of Rtes. 2 and 32, Norwich-Willimantic Fed. Aid Proj. F-53 (2) and F-116 (3), Norwich. Bids Oct. 25, awarded Dec. 6. CD 11/5, under LB.

▲ **CONNECTICUT**—State Hy. Comn., State Office Bldg., Hartford,
L. G. DeFelice & Son, Inc., Nettleton Ave., North Haven, Conn., LB, $3,788,921, Proj. 322-01, C. conc. 25,745 lin. ft. Section 22, Greenwich-Killingly Expressway, Westbrook-Saybrook;
John DeMichiel & Bros. Inc., 58 High St., Torrington, Conn., LB, $289,989, bit. macad. 9,695 lin. ft. Sharon-Lakeville Rd., Route 41, Proj. 125-76, Sharon-Salisbury. Bids Dec. 6. CD 12/17.

BUILDINGS

LOW BIDS AND CONTRACTS

M. Racioppi, 11 Beacon St., Boston, Mass. CA $516,974. V-301 addns., alterations to ADAMS HOSPITAL and SARGENT HALL, Soldiers Home, Crest Ave., CHELSEA, MASS. State, Bd. Trustees, Soldiers Home, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. CD 11/16, under LB.

▲ **Vara Constr. Inc.**, 718 Huntington Ave., Boston, Mass. CA $1,743,000. JUNIOR HIGH SCHOOL Hathaway Blvd., NEW BEDFORD, MASS. City, City Hall, New Bedford, Mass. CD 11/16, under LB.

Brooklawn Constr. Co., 254 Prospect Ave., Hartford, Conn., CA, $400,000, FACTORY, STORES, New Britain Ave., WEST HARTFORD, CONN. Puritan Furnitre Mart, 1041 New Britain Ave., West Hartford, Conn. Bids Nov. 19. CD 11/10.

▲ **Anderson Fairoaks Constr. Co.**, 149 S. Marshall St., Hartford, Conn., LB, $1,080,000, est. $1,000,000 Item No. 15, Proj. BI-D-184, FACULTY APARTMENTS, University of Connecticut, STORRS, CONN. State, Ralph G. Macy, P. Wks. Comr., State Office Bldg., Hartford, Conn. Lyons & Mather, 211 State St., Bridgeport, Conn., archts.

K. V. Hentes, Inc., Norman K. Kadely & George Vadnais, Windsor Locks, Conn., Owner Builds, $720,000, 60 RESIDENCES, Half-Way House Rd., WINDSOR LOCKS, CONN.

MIDDLE ATLANTIC

SOON LETS CONTRACT—BUILDINGS

▲ **Pa., Norristown**—HIGH SCHOOL—Roman Catholic Archdiocese of Phila., 310 N. 19 St., Phila., soon lets contract high school. $2,500,000. George E. Yundt, 125 S. 6 St., Allentown, archt. CD 6/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Gall Contr. Co.**, 35-15 Lawrence St., Flushing, N. Y. CA $8,177,180. Contr. LT-160-019, constr. approach roadway sys. in Manhattan for Lincoln Tunnel, incl. Third Tube from south side of 34 St. to southeast corner Dyer Ave. and 39 St., Sect. No. 1, NEW YORK. The Port of New York Auth., 111 8th Ave. New York 11, N. Y. Bids Dec. 7. CD 12/9, under LB.

▲ **Frank Mascali & Sons, Inc.**, 120 St. and 31 Ave., Flushing, N. Y., CA $2,332,785, grading, constr. retaining walls, drainage facilities, grade-separation structures and electrical sys. and paving where indicated together with all other work incidental thereto in Brooklyn-Queens Expressway (Connecting Hy) from 38 Ave. to Northern Blvd., NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids Nov. 9. CD 11/19, under LB.

▲ **NEW YORK**—Jones Beach State Parkway Auth., Administration Bldg., Belmont Lake State Park, Babylon,
Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., CA $5,510,000. Contr. No. 2, Southern State Parkway to East Gate Blvd., grading, drainage, paving grade separations for exten. of Meadowbrook State Parkway, Nassau Co. Bids Nov. 16, awarded Nov. 17. CD 11/19, under LB.

▲ **Spencer, White & Prentis, Inc.**, 10 E. 40 St., New York 17, N. Y., LB $6,221,337, Prop. 1, Sect. 1, Bridge to Willoughby Sts.;
The Arthur A. Johnson Corp., B. Perini & Son, Inc. and MacLean-Grove & Co., 347 Madison Ave., New York 17, N. Y., LB $9,999,782, Prop. 2, Sect. 2, Willoughby St. to Ashland Pl.;
Poirier & McLane Corp., 33 W. 42 St., New York 36, N. Y., LB $14,298,158, Prop. 3, Secs. 1 and 2. for DeKalb Avenue reconstr., Brooklyn, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 9. CD 11/8.

† **Cassidy & Gallagher**, 11 S. Lake Ave., Albany, N. Y. LB $193,739, Air Force Facilities, Air Force Training Center, Serial No. ENG-30-075-55-99, ALBANY, N. Y. U. S. Eng., 80 Center St., New York 13, N. Y. Bids Dec. 9. CD 11/10.

Spearin, Preston & Burrows, Inc., 50 Church St., New York 7, N. Y., LB $432,700, Westchester Intercepting Sewer, Contr. 722, 1,350 lin. ft. intercepting sewer on pile foundations and consisting of inverted siphon of two concrete piles 24 and 30 in. diam. under Echo Bay Harbor and Hudson Park; a diversion chamber with superstructure in Hudson, valve chamber in Hudson Park, 150 lin. ft. 30 in. diam. rein.-con. sewer from Hudson Park Rd. to diversion chamber, and raising and connection to approx. 28 ft. 24 and 30 in. mechanical joint c.i. pipe west of existing siphon dewatering chamber at treatment plant site, NEW ROCHELLE, N. Y. Dpt. P. Wks., Westchester County, County Bldg., White Plains, N. Y. Bids Dec. 8 CD 11/3.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick;
Bethlehem Steel Corp., 25 Broadway, New York, N. Y., LB, $3,247,045, Contract N-14 steel superstructure and concrete deck for South East Viaduct, extending from Ave. E. Interchange to vicinity of Brown Pl., Jersey City, Newark Bay-Hudson County Extension of New Jersey Turnpike, Hudson Co. Bids Dec. 7. CD 11/12.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
Fred W. Ewing, Inc., 405 W. Main St., Corry, Pa. CA $1,309,610. constr. 2 continuous concrete deck I-beam and 1 concrete deck girder, 1 I-beam bridges, L.R. 74, at Sharon, Mercer Co. Bids Nov. 19, awarded Dec. 9. CD 11/24, under LB.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa., CA $2,989,273, constr. filter bldg. substructures at the Torresdale Water Treatment Plant, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Nov. 18. CD 11/23, under LB.

MARYLAND—State Rd. Comn., 108 E. Lexington St., Baltimore, Zone 2,
McGuire & Roife, Inc., 1401 First St., Wash. 3, D. C. LB, $353,880. grading, drainage, relocation, surf. 4.18 mi. State Rte. 5, incl. wid'n. existing bridge, Great Mills, Contr. SM 300-3-520, St. Marys Co. Bids Dec. 7. CD 11/24.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
C. H. Lawson, Inc., Williamsburg, Va. and **Rea Constr. Co.**, Pineville Rd., Charlotte, N. C. CA, $1,163,634. grading, drainage, surf. 2.39 mi. dual hy. Greenbelt Rd., incl. 4 span steelbeam underpass, Contr. P 721-2-315, Prince George Co. CD 10/26, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
rejected bids Nov. 16, grading, drainage, surf. 2.259 mi. U. S. Rte. 240 near Wash., D. C., Contr. M 533-1-320, Montgomery Co. LB, $894,849. Will re-advertise. CD 11/23, under LB.

▲† **Lycoming Constr. Co., Inc.**, Williamsport, Pa. CA, $2,525,404. airfield imprvs., exten., ENG-18-020-55-19, ABERDEEN PROVING GROUND, MD. U. S. Eng., P. O. Box 1715, Baltimore 3, Md. CD 11/30, under LB.

Chas. E Brohawn & Bros., Cambridge, Mass. LB, $210,420, est. $300,000. concrete, steel, masonry field house, addn. to Hodson Hall, CHESTERTOWN, MD. Washington College, Chestertown, Md. Bids Dec. 8. CD 11/23.

Myers & Quigg, 91 "O" St. S. E., Wash., D. C., LB, $191,687, repairing c. conc. roadways, alley pavements and sidewalks various locations, WASH., D. C. D. C. Govt., Dpt. Hys., 499 Pa. Ave N. W., Wash., D. C. Bids Dec 7. CD 12/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Seton Hills Homes**, c/o Kenneth Kruchten, archt., 108 John St., Garden City, N. Y. Owner Builds. $2,500,000. 150 HOUSES, 33-acre tract, Haypath and Bethpage Rds., BETHPAGE, N. Y.

▲ **Castagna & Son, Inc.**, 155-10 Jamaica Ave. Jamaica, N. Y., CA, $2,487,539, general constr.;
Herman H. Schwartz, Inc., 179 S. Portland Ave., Brooklyn 17, N. Y., CA, $526,820, electrical work for constr. LABORATORY-MORTUARY and GARAGE BLDGS., Kings County Hospital, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Nov. 4, awarded Nov. 23. CD 11/8, under LB.

▲ **C. W. C. Constr. Corp.**, 105 Court St., Brooklyn 2, N. Y., LB, $1,823,500, general constr.;
H. Sand & Co., Inc., 11 Park Pl., New York 7, N. Y., LB, $372,830, heating;
Heckler Electric Co., 44 Schenectady Ave., Brooklyn 13, N. Y., LB, $597,700, electrical work for new addn. to and modernization of existing bldg. of Williamsburg Vocational HIGH SCHOOL, Bushwick Ave., Siegel and McKibbin Sts., BROOKLYN, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 9. CD 11/11.

▲ **Caristo Constr. Co.**, 26 Court St., Brooklyn 2, N. Y. LB $3,253,000, general constr.;
Raisler Corp., 129 Amsterdam Ave., New York 23, N. Y. LB $479,170, heating;
Bank Electrical Co., 126 W. 32 St., New York 1, N. Y. LB $730,000, electrical work for Wm. E. Grady Vocational HIGH SCHOOL, Brighton 6th St. between Shore Parkway and Brighton 4th Rd., BROOKLYN, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Dec. 10. CD 11/12.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

▲ **Tishman Realty & Constr. Co.,** 445 Park Ave., New York 22, N. Y. Owner Builds. **$2,500,000.** 2 story SHOPPING CENTER, site bounded by Hempstead Turnpike, Hempstead Ave., Rockaway Rd. and Long Island R. R., HEMPSTEAD, N. Y. Schulman & Soloway, 100-15 Queens Blvd., Forest Hills, N. Y., archts.

▲ **Gaylore at Huntington Homes,** c/o Kern Realty Co., 124-26 Queens Blvd., Kew Gardens, N. Y. Owner Builds. **$1,300,000.** 103 HOUSES, Deer Park Rd., south of Jericho Turnpike, HUNTINGTON, N. Y.

▲ **Lynvale Homes,** c/o Trylon Realty Co., 98-69 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$4,500,000.** 457 HOUSES, 208-acre tract at Pulaski and Old Commack Rds., KINGS PARK, N. Y.

▲ **Tishman Realty Constr. Co.,** 445 Park Ave., New York, N. Y., Own Forces. Est. **$40,000,000.** 34 story OFFICE, 5 Ave. between 52 and 53 Sts., NEW YORK, N. Y. Carson & Lundin, 50 Rockefeller Plaza, New York 20, N. Y. archts. (change in architects). CD 11/10, under CA.

▲ **Stratford at Roslyn Homes,** c/o Gale-Oppenheimer, 113 W. Sunrise Hy., Freeport, N. Y. Owner Builds. **$3,000,000.** 127 HOUSES, tract on Willis Ave. and Northern State Parkway, ROSLYN HEIGHTS, N. Y.

B. J. Lucarelli & Co., 22 Orchard St., Jersey City, N. J., LB, **$726,000** general contract 3 staff HOUSING UNITS, State Hospital, ANCORA, N. J. State Div. Purchase & Property, State House, Trenton, N. J. Bids Nov. 30. CD 11/24.

▲ **McCloskey & Co.,** 1620 W. Thompson St., Phila., Pa., CA **$1,274,000.** Benjamin Franklin Junior HIGH SCHOOL, BRISTOL, PA. Bristol Twp. School Auth., Rogers Rd., Bristol, Pa. Bids Oct. 20. CD 10/28, under LB.

McCloskey & Co., 1620 W. Thompson St., Phila., Pa. CA **$522,000,** est. $740,773, Lafayette Elementary SCHOOL, BRISTOL, PA. Bristol Twp. School Auth., Rogers Rd., Bristol, Pa., A. E. Micklewright, 72 Ewing St., Trenton, N. J. and Failsington, Pa., archt.

▲ **Shelbourne Homes, Inc.,** 6486 Mathews St., Phila., Pa. Separate Contracts. **$1,000,000.** RESIDENTIAL DEVELOPMENT, Shelbourne St., PHILA., PA.

▲ **Longwood Constr. Co.,** McClatchy Bldg., Upper Darby, Pa. Separate Contracts. **$1,350,000.** RESIDENTIAL DEVELOPMENT, PHOENIXVILLE, PA. Erling Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

▲ **General Constructors, Inc.,** 6137 Market St., Phila., Pa., CA **$1,000,000.** RESIDENTIAL DEVELOPMENT, Springfield Twp., SPRINGFIELD, PA. Owner, c/o general contractor.

▲ **Paulex, Inc.,** First National Bank Bldg., Baltimore, Md. CA, **$5,585,000.** 11 to 16 story OFFICE, 309 to 313 N. Charles St. over St. Paul Garage, St. Paul and Saratoga Sts., BALTIMORE, MD. Commercial Credit Co., St. Paul and Saratoga Sts., Baltimore, Md. Bids Dec. 3. CD 11/23.

▲ **Jack Meyerhoff & Sons Co.,** 14 W. Saratoga St., Baltimore 1, Md. Owner Builds. **$1,130,000.** 126 brick veneer DWELLINGS in Rollingwood Development west of BALTIMORE, MD.

Consolidated Engineering Co., 20 E. Franklin St., Baltimore 2, Md. CA, **$521,600.** concrete, steel, block masonry PRINTING PLANT, BALTIMORE, MD. Lord Baltimore Press, 1601 Edison Hy., Baltimore, Md. Bids Nov. 22. CD 11/10.

▲ **E. W. Pittman,** 808 Albany Ave., Alexandria, Va. CA Est. **$2,760,000.** 230 brick detached HOMES, off Palmer Hy. between Ardmore and Lanham Sts., Prince Georges County, UPPER MARLBORO, MD. District Corp., Washington Bldg., Wash., D. C. Walton & Maddon, 3510 Rhode Island Ave., Mount Ranier, Md., archts.

▲ **Dan Ostrow Constr. Co.,** 1422 K St. N. W., Wash., D. C. Owner Builds. **$7,100,000.** 400 brick detached HOMES, at Greenwood Knolls, WHEATON, MD.

▲ **James H. Wood Inc.,** 15 E. North St., Dover, Del., LB, **$600,000,** East Dover Elementary SCHOOL; LB **$593,000,** State St. Elementary SCHOOL, DOVER, DEL. Dover Special School Dist., Dover, Del. Bids Dec. 1. CD 11/23.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Va., Petersburg—BA 1/27—City, City Hall Bldg., N. Union and W. Tabb St., Prop. No. 1, constr. Appomattox River Interceptor complete, the Bollingbrook St. Sewer, Poor Creek Pumping Station force main and Haxall Street Sewer all complete; Prop. No. 2, sewage treatment plant with main control bldg. and all sewage equipment, main sewage pumping station and Poor Creek Sewage Pumping Station, 30 in. sewage force main, water main and access roads; Prop. No. 3, sludge drying equipment; Prop. No. 4, include all work covered by Prop. No. 1 and Prop. No. 2. Plans deposit $50. Wiley & Wilson, Courtland Bldg., 620 Court St., Lynchburg, engrs. CD 10/21/52.

BIDS ASKED—BUILDINGS

▲ **S. C., Columbia**—SCHOOL—BA 1/6—State, Columbia, negro school for mentally retarded children, **$3,000,000,** Lafaye, Fair, Lafaye Assoc., 1226 Sumter St., Columbia, archts.

Va., Fairfax—SCHOOL—BA 1/11—Fairfax Co. Bd. Educ., Court House, constr. Groveton Elementary School. $330,000. Plans deposit $25. Hayes, Seay, Mattern & Mattern, 1615 Franklin Rd. S. W., Roanoke, archts. CD 2/9/53.

▲ **Ky., Louisville**—SCHOOL—BA 1/12—Bd. Educ., Fifth and Hill Sts., Gottschalk Junior High School, Taylor Blvd. $1,500,000. Plans deposit $75, refundable. Otis & Grimes, Tyler Bldg., archts. E. R. Ronald & Assoc., 554 S. Third St., engrs. CD 11/30/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **T. L. James & Co., Inc.,** Ruston, La. and **W. R. Aldrich & Co.,** Box 1751, Baton Rouge, La. CA **$3,514,896,** est. $3,000,000-$5,000,000. apron and taxiway paving Lake Charles Air Force Base, ENG-41-243-55-26, LAKE CHARLES, LA. U. S. Eng., Box 1229, Galveston, La. CD 11/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Whitener & Skillman, 4915 34 St., North Arlington, Va., LB **$305,245.** Floris Elementary SCHOOL, FAIRFAX, VA. Fairfax Co. Bd. Educ., Court House, Fairfax, Va. Bids Dec. 7. CD 11/17.

▲ **Algernon Blair Co.,** First Natl. Bank Bldg., Montgomery, Ala., Owner Builds. **$5,200,000.** 400 brick HOMES, 125 acre tract, Franconia Rd., FRANCONIA, VA.

▲ **English Constr. Co.,** Altavista, Va., LB **$1,116,475.** Krise Memorial Bldg. and alterations, addns, to admin. bldg. and heating plant at HOSPITAL, LYNCHBURG, VA. Virginia Baptist Hospital, Lynchburg, Va. Bids Dec. 6. CD 11/15.

▲ **Washington Eng. & Constr. Co.,** Oakland and Penna. Ave. Washington, Pa., CA Est. **$1,000,000,** NOVITIATE and MOTHER HOUSE, WHEELING, W. VA. Catholic Sisters of St. Joseph, 1322 Eoff St., Wheeling, W. Va. Marlier & Johnstone, 1107 Empire Bldg., Pittsburgh,

▲ **J. A. Jones Constr. Co.,** 354 Aero Dr., Shreveport, La. LB **$1,065,396.** MUNICIPAL BLDG., BATON ROUGE, LA. City, City Hall, Baton Rouge, La. Bids Dec. 8. CD 11/18.

MIDDLE WEST

BIDS ASKED—BUILDINGS

O., Dayton—SCHOOL—BA 1/5—Bd. Educ., 232 N. Main St., 2 story Residence Park School Addn. "B", 833 Elmhurst Rd. Rollin E. Gebhart, Miami Savings Bldg., archt. CD 3/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

L. Harold Halpin, Christie Ave., Toledo, O. LB **$285,510,** laying steel pipe; LB **$237,535,** laying concrete pipe, Contr. 82-B, 600 ft. 72 in. and 3,000 ft. 60 in. pipe from water tunnel under Maumee River to Buckeye and Paxton Sts., TOLEDO, O. City, Safety Bldg., Toledo, O. Bids Nov. 30. CD 11/4.

† **John R. Jurgensen Co.,** Round Bottom and N. & W. R. R., Newtown, O., CA **$305,134,** est. $331,202, new primary taxiways, 43,000 sq. yd. paving, Clinton County Air Force Base, ENG-46-022-55-8, WILMINGTON, O. U. S. Eng., 237 Fourth Ave., Huntington 16, W. Va. Bids Nov. 24. CD 11/12.

▲ **Marsch Constr. Co.,** 1307 W. Wrightwood St., Chicago, Ill., CA **$1,716,925,** Rhode Island Ave. Intercepting Sewer Section. CD 12/8, under LB.;

Kenny Constr. Co., 3220 Oakton St., Skokie, Ill., CA, **$377,782,** intercepting sewers, Broadway Section, GARY, IND. City, City Hall, Gary, Ind. Bids Nov. 22, awarded Dec. 8. CD 10/27.

Sangamo Constr. Co., 700 N. MacArthur Blvd., Springfield, Ill., LB, **$283,968,** channel dam on south fork of Sangamon River for water supply, SPRINGFIELD, ILL. City, City Hall, Springfield, Ill. Bids Dec. 8. CD 11/8.

Holloway & Thompson Constr. Co., 29350 Jay St., Livonia, Mich. CA **$504,338.** Contr. No. 1 relief and storm sewers, JACKSON, MICH. City, Lloyd Head, purch. agt., City Hall, Jackson, Mich. CD 12/7, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hubert D. Cornwell,** 585 Upland Rd., Bay Village, O. Owner Builds. **$1,105,000.** 60 DWELLINGS, Holland Rd., BROOK PARK, O.

▲ **Owner,** c/o Robert C. Coplan, Citizens Bldg., Cleveland 14, O. Owner Builds. **$1,785,000,** 105 frame HOMES, W. 130 St. and Hummel Rd., BROOK PARK, O.

Knowlton Constr. Co., 106 N. Main St., Bellefontaine, O., CA **$953,150,** general constr. HIGH SCHOOL, McTigue Dr. and Nebraska Ave. and addn. to Fall-Meyer SCHOOL, 1800 Krieger St., TOLEDO, O. Bd. Educ., Adams Twp. School Dist., Reynolds Rd., Toledo, O. Bids Dec. 7. CD 11/19.

Huber, Hunt & Nichols, Box 128, Indianapolis, Ind., CA, **$708,000,** LAW SCHOOL, BLOOMINGTON, IND. University of Indiana, Bloomington, Ind. Bids Nov. 10, awarded Nov. 24. CD 11/22, under LB.

▲ **De Camp Realty Co.,** 38 and Georgetown Rd., Indianapolis, Ind., Owner Builds, **$4,000,000,** 375 National HOMES in Eagledale along Georgetown Rd. between 30 and 38 Sts., INDIANAPOLIS, IND.

▲ **Columbia Builders, Inc.,** Spoon and 12 Mile Rd., Royal Oak, Mich. Owner Builds. **$1,700,000.** 160 single brick HOUSES, Red Run Golf Course Section, Royal Oak Twp., ROYAL OAK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Tex., Terrell—BA 1/6—City, reservoir for water supply $450,000; water pump station, water lines, $175,000. Joe E. Ward, 1608-A Monroe St., Wichita Falls, engr. CD 8/27/53.

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† **Tex., San Antonio**—SWIMMING POOL—BA 1/11—U. S. Eng. P. O. Box 1229, Galveston, rein.-con. swimming pool, bathhouse, parking paved area center, general paving area, and appurtenances at Media Base near Bexar. $100,000-$500,000. Extended date. CD 12/7.

BIDS ASKED—BUILDINGS

Tex., Terrell—RECEIVING and TREATMENT—BA 1/4—Bd. Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, 150-bed, brick, concrete receiving and treatment bldg. and related hospital facilities, Terrell State Hospital. $700,000. Extended date. Tatum & Quaid, 2812 Fairmount St., Dallas, archts. Landauer & Shafer, 4801 Lemmon St., Dallas, engrs. CD 11/16.

▲ **Tex., Laredo**—HOSPITAL—BA 1/18—Sisters of Mercy, c/o Mercy Hospital, Laredo, 6 story, 150-bed masonry hospital. $1,500,000. Plans deposit $50. Extended date. Wade-Gibson-Martin, 419 Med. Prof. Bldg., Corpus Christi, archts. CD 9/28.

▲ **Ia., Davenport**—COURT HOUSE—BA 1/20—Scott Co., Court House, court house. $1,480,000. A. H. Ebeling, 719 Kahl Bldg., archt. CD 10/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Hallett Constr. Co.**, Crosby, Minn., CA **$720,429**. est. $788,176, stringing conductors and overhead ground wires for 83 mi. Jamestown-Fargo 230-kv transmission line, Spec. DC 4269, Missouri River Basin Proj., Stutsman, Barnes and Cass Counties, NORTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bismarck, N. D. Bids Nov. 16, awarded Dec. 3. CD 11/23, under LB.

▲ **Northern Natural Gas Co.**, 2223 Dodge St., Omaha, Neb. Owner Builds. $50,000,000, gas pipe line to distribute natural gas from Canada into S. D., Minn. and N. D., 188 mi. line from Emerson to Wahpeton N. D., 215 mi. from Wahpeton, N. D., to Farmington, Minn., compressor station at Pembina, N. D., branch lines along Emerson-Farmington lines, SOUTH DAKOTA, NORTH DAKOTA, MINNESOTA. F. B. Rabb, c/o owner, asst. ch. engr. CD 10/9/52.

▲ **Martin K. Eby Constr. Co., 610 N. Main St., Wichita, Kan.** CA **$460,337**, overhead crossings Arkansas River and Wichita-Valley Center flood control right of way;

Pittsburgh-Des Moines Steel Co., 1015 Tuttle St., Des Moines, Ia. CA **$88,220**. 3 m.g. steel surge tank west of Bentley;

W. S. Rockwell Co., Fairfield, Conn. CA **$92,036**. valves;

Lock Joint Pipe Co., 150 Rutledge Ave., East Orange, N. J. CA **$3,407,163**. concrete encased steel pipe, WICHITA, KAN. City Comrs., c/o C. C. Ellis, clk., City Hall, Wichita, Kan. Grand total $4,047,756. Bids Nov. 30, awarded Dec. 7. CD 11/19.

OKLAHOMA—State Hy. Dpt., State Capitol, Oklahoma City,

R. R. Tway, Inc., 710 E. 19 St., Oklahoma City, Okla., CA, $100,289, est. $113,628, 6 concrete steel bridges Hy. 45 west of Carmen, Alfalfa Co.; CA **$234,746**, est. $287,272, 3 bridges on Cache Creek on U. S. 70, east of Taylor, Cotton Co.; CA **$208,795**, est. $255,-911, bridge and overpass on U. S. 270 east of Seminole, Seminole Co.;

Gragg Constr. Co., Henryetta, Okla., CA, $69,169, est. 83,532, 2 bridges on State Hy. 7 east of Johnston Co. Line, Atoka, Atoka Co.;

Henryetta Constr. Co., Henryetta, Okla., CA $145,727, est. $166,122, grade separation at N.W. 39 St. and Grand Blvd. on U. S. 66, Oklahoma City, Oklahoma Co.;

F. W. Hinrichs Co., Admiral Blvd., Tulsa, Okla., CA, $179,774, est. $195,333, 8 concrete, steel bridges, U. S. 66 east of Tulsa, Tulsa Co. Grand total $938,-500. Bids Dec. 7, awarded Dec. 8. CD 11/24.

▲ **OKLAHOMA**—State Hy. Dpt., State Capitol, Oklahoma City, Zone 5,

Jack Briscoe, Stillwater, Okla., CA $690,566, est. $677,037, conc. p. 3.029 mi. U. S. Hy. 66 Freeway west of Claremore, Rogers Co.;

Standard Paving Co., 2119 E. 11 St., Tulsa, Okla., CA $513,581, est. $493,298, rock base and b. conc. 4.309 mi. U. S Hy. 66, east of Verdigris, Rogers Co.;

Lyles & Buckner, Surety Bldg., Muskogee, Okla., CA $653,994, est. $633,845, c. conc. 3.901 mi. U. S. 62, in Muskogee, Muskogee Co. Grand total $1,858,141. Bids Dec. 7, awarded Dec. 10. CD 12/13, under LB.

▲ **OKLAHOMA**—State Hy. Dpt., State Capitol, Oklahoma City,

John Ertz Constr. Co., 1517 North Broadway, Oklahoma City, Okla., CA, $199,696, est. $212,444, stab. aggregate base with c. conc 4.058 mi. U. S. 70, Waurika, Jefferson Co.; CA **$73,471**, est. $74,393 b. conc. wid'n. 2 mi. U. S. 270, Shawnee, Pottawatomies Co.; CA **$185,343**, est. $192,048, stab. aggregate, base b. conc. surf. 4.001 mi. U. S. Hy. 70 east of Waurika, Jefferson Co.;

Smith Brothers, Noble, Okla., CA, $120,343, est. $134,-993, grading, draining, bridge 4.072 mi. U. S. 81 north of Duncan, Stephens Co.; CA **$102,560**, est. $114,635, stab. asph base, bit. 4.523 mi. Hy. 45 west of Carmen, Alfalfa Co.; CA **$84,898**, est. $94,425. stab. asph. base, with bit. 4.78 mi. Hy. 45, Woods Co.;

Layman & Sons Co., Riverside Dr., Tulsa, Okla., CA, $681,181, est. $687,645, asph. base with b. conc. surf. 2.52 mi. U. S. 66, east of Tulsa, Tulsa Co.; CA **$132,330**, est. $155,189, stab. aggregate base with bit. 6.336 mi. Hy. 31 west of Lequire, Haskell Co.;

H. G. Cozad, Sulphur, Okla., CA, $81,910, est. $93,699 grading, draining, 2 bridges 2.905 mi. Hy. 61 north of Vanoss, Pontotoc Co., CA **$63,733**, est. $72,597 rock asph. 0.814 mi. Hy. 18 south of Sulphur, Murray Co.;

Anderson Constr. Co., McAlester, Okla., CA, $114,475, est. $139,396, grading, draining, culverts 6.197 mi. Hy. 7 east of Johnston Co. line, Atoka Co.;

Broce Constr. Co., Woodward Okla., CA, **$152,369**, est. $160,094, stab. asph. base, bit. 7.914 mi. Hy. 50 at Mooreland, Woodward Co.;

Burbank Rock Co., Ponca City, Okla., CA, $142,383, est. $151,035, grading, draining 5.656 mi. county road East of Francis, Pontotoc Co.;

M. E. Gilliox, Monett, Mo., CA, **$168,480**, est. $188,-157, grading, draining 3.68 mi. U. S. 270 east of Seminole, Seminole Co.;

Hinriches Constr. Co., Admiral Blvd., Tulsa, Okla., CA, **$64,005**, est. $74,584, grading, draining 3.944 mi. U. S. 60 west of Fairland, Ottawa Co.;

Imperial Paving Co., 400 East Grand Ave., Oklahoma City, Okla., CA, **$325,204**, est. $329,441, asph. stab. base, with b. conc. 0.465 mi. U. S. 66 west of May Ave., Oklahoma City, Oklahoma Co.;

Haskell Lemon, 3014 N. W. 49 St., Oklahoma City, Okla., CA, **$36,617**, est. $417,056, stab. aggregate base with b.conc. 4.068 mi. U. S. 81 north of Duncan, Stephens Co.;

McConnel Constr. Co., 5020 N. W. 16 St., Oklahoma City 7, Okla., CA, **$187,152**, est. $234,392, stab. aggregate base and bit. 7.177 mi. Hy. 51 east of Coweta, Wagoner Co.;

E. C. Ottinger, 3101 Camp Bowie St., Fort Worth, Tex., CA **$160,458**, est. $197,086, grading, draining, bridge 2.373 mi. U. S. 64 east of Tulsa, Tulsa Co.;

Metropolitan Paving Co., 300 South Indian St., Oklahoma City, Okla., CA, **$75,344**, est. $84,213, b.conc. 0.519 mi. Hy. 74 north of May Ave., Oklahoma City, Oklahoma Co. Grand total $3,480,052. Bids Dec. 7, awarded Dec. 8. CD 11/24.

† **Milo J. Choate & Co., Inc.**, Tyler, Tex., CA, **$206,-000**. bulk storage shed, Tinker Air Force Base, ENG-34-066-55-23, OKLAHOMA CITY, OKLA. U. S. Eng., P. O. Box 61, Tulsa 2, Okla. Bids Nov. 18. CD 11/4.

Texas Gulf Constr. Co., Inc., 2008 S. Wayside St., Houston, Tex., CA, **$519,999**, pavilion at Sylvan Beach, HOUSTON, TEX. Harris Co., c/o Comrs. Court, Court House, Houston, Tex. Bids Nov. 29.

▲† **Metropolitan Paving Co., Inc.**, P. O. Box 3868, N. W. Station, Oklahoma City, Okla., CA, **$2,072,739**, addnl. airfield pavements and airfield lighting, Inv. ENG-29-005-55-30, Walker Air Force Base, ROSWELL, N. M. U. S. Eng., P. O. Box 1538, Albuquerque, N. M. Bids Nov. 17 CD 11/2, under LB

BUILDINGS

LOW BIDS AND CONTRACTS

Hassien Constr Co., Ortonville, Minn. and **Sioux Falls Constr. Co.**, 800 S. Seventh St., Sioux Falls, S. D. LB, **$987,680**. general contract HIGH SCHOOL, remodel existing bldg., LUVERNE, MINN. Bd. Educ., E. P. Pieggras, clk., Luverne, Minn. Bids Dec. 1. CD 10/27.

▲ **Lippert Brothers, Inc.**, 2700 North Santa Fe St., Oklahoma City, 5, Okla., CA, **$1,097,436**, est. 1,100,-000. CHURCH, N. W. 25 and Western Sts., OKLAHOMA CITY, OKLA. First Presbyterian Church, 1011 N. Robinson St., Oklahoma City, Okla. Awarded Dec. 7. CD 10/15, under LB.

▲† **H. B. Zachry Co.**, West Harding Blvd., San Antonio, Tex., CA **$6,000,000**. constr. PLANT, mfg. line to build jet assist take off rockets, for U. S. Air Force, MCGREGOR, TEX. Phillips Petroleum Co., McGregor, Tex. CD 6/2.

R. R. Jones & Son, West, Tex., LB, **$384,000**, combination bid, CHURCH, WEST, TEX. Church of the Assumption, West, Tex. Bids Nov. 30. CD 10/25.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Oregon**—BA 1/18—U. S. Eng., Pittock Block, Portland, grading Spokane, Penn and Seattle Ry., North Dalles to Wishram (The Dalles Dam Proj.), Klickitat Co., Wash., CIVENG-35-026-55-104. $5,000,000. CD 12/23.

BIDS ASKED—BUILDINGS

Calif., Ventura—SCHOOL—BA 12/21—Ventura Elementary School District, Ventura, five 1 story, frame, stucco Lincoln School, buildings. $300,000. Plans deposit $50. Wilson, Stroh & Wilson, Say Rd., Santa Paula, Calif., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Winston Brothers Co.**, 1532 S. California Ave., Monrovia, Calif., LB, **$3,036,350**, constructing Rio Hondo Channel, Whittier Narrows Flood Control, Basin, CIVENG-54-353-55-16, Los Angeles Co., CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Dec. 9. CD 11/17.

Stolte, Inc. and Morrison-Knudsen, Inc., 8451 San Leandro St., Oakland, Calif., LB **$533,016**, est. $500,000. Proj. 216, Ruby Canyon Storm drain, Monrovia, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Dec. 3. CD 11/15.

Vido Artukovich & Sons, 11155 Rush St., El Monte, Calif., CA, **$735,602**, est. $1,000,000 Joint Outfall Sewer B, Unit 1 A, Section 1 C, Wilmington-San Pedro, LOS ANGELES, CALIF. Los Angeles Co., Sanitation Dist. No. 2, 2020 Beverly Blvd., Los Angeles, Calif. Bids Dec. 8. CD 11/23.

Rogers Constr. Co., 3669 California St., San Diego, Calif., LB, **$507,599**, est. $500,000 San Vicente Aqueduct connection, SAN DIEGO, CALIF. City, Civic Center, San Diego, Calif. Bids Dec. 6. CD 11/18.

BUILDINGS

LOW BIDS AND CONTRACTS

Hedeen Constr. Co., 1404 N. 143 St., Seattle, Wash., LB **$372,400**, general contract 5 masonry buildings for Forest Crest Elementary SCHOOL, Mountlake Terrace area, EDMONDS, WASH. School District No. 15, Edmonds, Wash.

Lewis Constr. Co., 1711 Jackson St., Seattle, Wash., LB **$752,436**, general contract 98x106 ft. and 122x 85 ft. GYMNASIUMS, 125x70 ft. CAFETERIAaddns. to high school, RENTON, WASH. School District, 403, 1525 4 Ave. N., Renton, Wash. Bids Dec. 7. CD 11/10.

E. F. Wopschall Co., 35 N. Arroyo Parkway, Pasadena, Calif., CA **$401,214**, Trawsek SCHOOL addns., COVINA, CALIF. Covina School District, 475 N. 2 St., Covina, Calif. H. L. Gogerty, 13123 W. 8 St. Los Angeles, Calif., archt. Bids Oct. 18. CD 7/13.

Crown Constr. Co., 1231 S. La Brea St., Los Angeles, Calif., CA, **$500,000**, 50 frame, stucco DWELLINGS, N. 16 West, N. Lorimer Ave., etc., LANCASTER, CALIF. Fair Ground Homes, Inc., 1231 S. La Brea St., Los Angeles, Calif.

▲ **Barrett Constr. Co.**, Evans Ave. and Rankin St., San Francisco, Calif., LB, est. **$2,500,000**. 206-room desert-type SAGE HOTEL, SAN JOSE, CALIF. Joseph Marchant & Assocs., Santa Clara, Calif. Bruce E. Heiser, 251 Post St., San Francisco, Calif., archt.

Ford J. Twaits Co., 449 S. Beaudry St., Los Angeles, Calif., CA **$750,000**, 32,000 sq. ft. HOSPITAL addns., alterations, SANTA BARBARA, CALIF. St. Francis Hospital, Santa Barbara, Calif. Bids Sept. 30, awarded Dec. 3. CD 10/22, under LB.

L. C. Anderson Co., 3040 Hancock St., San Diego, Calif., CA **$344,100** 29 Palms Elementary SCHOOL addn. TWENTYNINE PALMS, CALIF. Morongo School Dist., Twentynine Palms, Calif. Bids Sept. 30, awarded Dec. 3.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Drummond McCall Ltd., 930 Wellington St., Montreal, Que., CA, **$265,089**, 16- to 48-in. gate valves, MONTREAL, QUE. Municipality, City Hall, Montreal, Que. CD 9/13/44.

BUILDINGS

LOW BIDS AND CONTRACTS

Bennett & White Constr. Co. Ltd., 660 Howe St., Vancouver, B. C., CA, **$531,599**, concrete, brick, stone JUNIOR HIGH SCHOOL, NORTH VANCOUVER, B. C. School Bd., 2300 W. Keith Rd., Vancouver, B. C. Bids Nov. 15. CD 11/26, under LB.

▲ **Roman Catholic Episcopal Corp.**, St. John's, Newfoundland, cancelled contract HOME for AGED, ST. JOHN'S, NEWFOUNDLAND, CA **$1,500,000**. (Correction—status). CD 12/7, under CA.

Anglin-Norcross Ontario Ltd., 224 Davenport Rd., Toronto, Ont., CA, **$300,000**, FACTORY, Hy. 401 near Dufferin St., TORONTO, ONT. Consolidated Glass Industries Ltd., 241 Spadina Ave., Toronto, Ont. Bids Nov. 25, awarded Dec. 3. CD 11/17.

H. Groves, 5 Pinedale Crescent, Toronto, Ont., Owner Builds, **$600,000**, 70 suite, 3 story APARTMENT, Broadway Ave. near Yonge St., TORONTO, ONT.

▲ **R. C. A. Construction Ltd.**, 8602 de L'Epee Ave., Montreal, Que. Owner Builds. **$2,500,000**, 200 DWELLING UNITS, Forsythe and Victoria Sts., at Pointe aux Trembles, MONTREAL, QUE. CD 12/8.

Northhill Constr. Co. Ltd., 5950 Cote des Neiges Rd., Montreal, Que. Owner Builds, **$600,000**, addnl. 60 HOUSING UNITS, Alfred, Henry and Edgar Sts., MONTREAL NORTH, QUE. E. Bujold, 6904 Molson St., Montreal, Que., archt.

Proposed Projects

WATER SUPPLY

▲† **Pa., Letterkenny**—U. S. Eng., P.O. Box 1715, Baltimore 3, Md., water supply sys. addn., Letterkenny Ordnance Depot. $1,000,000. Harris-Dechant & Assoc., 123 S. Broad St., Phila., Zone 9, consult. engrs.

† **Pa., Marietta**—U. S. Eng., P.O. Box 1715, Baltimore 3, Md., water tank and sprinkler sys. Warehouses 1 to 9, Marietta Transportation Corps Depot. $500,000. Gannett, Fleming, Corddry & Carpenter, Inc., 600 N. 2nd St., Harrisburg, consult. engr.

SEWERS, WASTE DISPOSAL

▲ **Calif., San Jose**—City, City Hall, primary sewage treatment plant, **$2,500,000**. Brown & Caldwell, 66 Mint St., San Francisco, consult. engrs. CD 11/9/53.

▲ **Ill., Mattoon**—City, City Hall, sewerage sys. addn., sewage treatment plant, **$1,125,000**. Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago, Zone 11, consult. engrs.

Minn., Stillwater—City, L. R. Bower, clk.-treas., Stillwater, sewage disposal plant. **$500,000**. Banister Eng. Co., 1549 University Ave., St. Paul, consult. engr.

BRIDGES

▲ **Tex., Galveston**—City, City Hall, Pelican Island Bridge. $6,000,000. Parsons, Brinckerhoff, Hall & Macdonald, Bankers Mortgage Bldg., Houston, consult. engrs. CD 2/3.

Ont., Toronto—Municipality of Metropolitan Toronto, City Hall, new concrete bridge replacing one which collapsed, 6 lanes, Hoggs Hollow, Yonge St., North York. $600,-

000. M. M. Dillon & Co. Ltd., 974 Eglinton Ave. W., engrs. CD 12/1.

STREETS AND ROADS

CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,

Stratford—4.3 mi. hy. east end of Housatinic River Bridge to east side of Boston Post Rd., Milford. $500,000. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., consult. engrs. CD 8/5.

▲ **Tex. Tyler**—City, street imprvs., paving. $1,000,000. Wisenbaker, Fix & Assocs., Tyler, consult. engrs. CD 3/5/52.

EARTHWORK, WATERWAYS

▲ **Calif., San Leandro**—San Leandro Flood Control District, Zone 9, San Leandro, $1,479,000 bond election Feb. 15, flood control system.

▲ **Idaho and Oregon**—Pacific Northwest Power Co., c/o Washington Water Power Co., 825 Trent Ave., Spokane 6, Wash., hydro dams at Mountain Sheep and Pleasant Valley sites, on Snake River. $200,000,000. CD 11/22/50.

▲ **Montana**—Washington Water Power Co., W. 825 Trent St., Spokane, Wash., 5,220 ft. concrete, earthfill dam 190 ft. high on Clark Fork River with 385,000-kw power plant and transmission lines Noxon, Sanders Co. $87,000,000.

AIRPORTS

▲ **Wyo., Riverton**—AIRPORT—City, City Hall, bond election Jan. 10, airport imprvt. project. $1,000,000. (Correction—status). CD 11/24.

PUBLIC BUILDINGS

Calif., Hawthorne—SCHOOL—Hawthorne School District, Hawthorne, voted $975,000 bonds, Nov. 19, Schools imprvs.

Calif., North Sacramento—SCHOOLS—Grant Union High School Dist., Del Paso Heights, voted $850,000 bonds, schools addns.

▲ **Colo., Denver**—AUDITORIUM—City and Denver Co., City-County Bldg., plans by Stanley E. Morse, archt.-engr., 1050 Cherokee St., city auditorium, near Cheesman Park, $2,000,000. CD 8/11/49.

▲ **Kan., Kansas City**—SCHOOLS—Bd. Educ., Library Bldg., plans by J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., West Junior High School $700,000; Rosedale Junior and Senior High School $450,000; plans by R. E. Meyn, 2944 N 53 St., Kansas City, Kan., Francis Willard School addn., $350,000. CD 10/28/53.

Ky., Louisville—HOSPITAL—City, 323 E. Chestnut St., plans by Samuel Hannford & Sons, Dixie Terminal Bldg., Cincinnati, O. and Joseph & Joseph, assoc. archts., Speed Bldg., Louisville, general hospital addn. $750,000. E. R. Ronald & Assoc., 554 S. Third St., consult. engrs. CD 10/23/53.

† **Maryland and Pennsylvania**—FACILITIES—U. S. Eng., P.O. Box 1715, Baltimore 3, Md., plans by Pierce Management, Inc., Scranton Electric Bldg., Scranton, Pa., facilities of M sites at 2 locations, $750,000, Von Storch, Evans, Scandale & Burkavage, Scranton Electric Bldg., Scranton, Pa., consult. engrs.

▲† **Md., Aberdeen Proving Ground**—LABORATORY, etc. U. S. Eng., P.O. Box 1715, Baltimore, Zone 3, concrete, steel, block fire control testing laboratory, $500,000, Mills, Petticord & Mills & Assoc., 14 St. and Park Rd. N.W., Wash., D. C., consult. engrs; masonry, steel, concrete technical equipment service bldg., $500,000, Whiteside, Foster, Damon & Doane, Inc., 100 S. French St., Wilmington, Del., consult. engr.; concrete, block, structural steel ammunition training and renovation shop, $300,000, J. L. Faisant & Assoc., Inc., 21 W. 25 St., Baltimore, Zone 18, consult. engr.; structural steel, concrete supersonic wind tunnel addn., $1,000,000, Jack Steele Co., 1300 W. Hunting Park Ave., Phila. 40, Pa., consult. engr.; increased capacity of electric distr. sys., $300,000, Eggly-Furlow Engineers, 1500 Walnut St., Phila., Pa., consult. engrs.

▲† **Md., Edgewood**—TECHNICAL and ADMINISTRATION, etc.—U. S. Eng., P. O. Box 1715, Baltimore, Zone 3, technical and admin. bldg., utilities, $750,000, The Pepper Assoc., 1616 Locust St., Phila. 3, Pa., consult. engrs.; masonry bio-physics assessment laboratory, $500,000, Turpin, Wachter & Assoc., 1004 N. Charles St., Baltimore 1, consult. engrs.; renovation of 4 bldgs. in troop area, $300,000, J. L. Faisant & Assoc., Inc., 21 W. 25 St., Baltimore, Zone 18, consult. engr.; concrete, steel, masonry surveillance storage bldg., communications bldg., $500,000, Fenton & Lichtig, 2023 Maryland Ave., Baltimore, Zone 18, consult. engrs.; addn. to Van Bibber Dam, $300,000, Harris-Dechant & Assoc., 123 S. Broad St., Phila. 9, Pa., consult. engrs.; design sprinkler system for 51 bldgs., $500,000, Eggly-Furlow Engineers, 1500 Walnut St., Phila. 2, Pa., consult. engrs., all above projects at Army Chemical Center. CD 10/1/51.

▲ **Mass., Boston**—SCHOOLS—City, Dpt. School Bldg., 26 Norman St., elementary school, Mary Hemenway Dist., Elfridge Smith School site, Center St., Dorchester, $529,230; elementary school, Elihu Greenwood Dist., Fairmount area, Hyde Park, $703,600; elementary school, Elihu Greenwood Dist., Elihu Greenwood School site, Hyde Park, $747,700; high school, Boston Trade High School Sherwin Dist., Roxbury, $517,800.

▲ **Mass., Holliston**—SCHOOL—Town, School Dpt., R. H. Adams, chm. High School Housing Comn., F. W. Miller, supt., Holliston, plans by Charles H. Cole, 55 Waltham St., Lexington, Junior-Senior High School. Linden and Woodland Sts., $1,300,000.

▲ **Mass., Malden**—SCHOOL—City, School Comn., 2 Ferry St., Daniels Elementary School addn., 20 Daniels St., $700,000; school, Sylvan St., $900,000. CD 11/17/48.

Mich., Mount Clemens—SCHOOL—L'Anse Crause Public School Dist., Millier, Canfield, Paddock & Stone, attys., 3456 Penobscot Bldg., Detroit, high school, $850,000.

Minn., Bloomington (P. O. Minneapolis)—SCHOOL—Bd. Educ., A. Moir, clk., plans by E. D. Corwin, E. 818 First Natl. Bank Bldg., St. Paul, elementary school. $950,000. CD 6/16.

▲ **N. J., Newark**—PARENTAL SCHOOL—Bd. Freeholders Essex Co., Hall of Records, Newark, plans by W. Orren Bartlett, Bloomfield Ave. and Broad St., Bloomfield, Essex County Parental School addns., imprvs. $1,000,000.

▲ **N. Y., Brooklyn**—SCHOOL—Bd. Educ., Bureau Constr., 41-15 Crescent St., Long Island City, Zone 1, Proj. E-436, P. S. 107. $1,550,000. CD 9/8/49.

N. Y., Brooklyn—SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, Proj E-666, P. S. 137 addn. $800,000. CD 9/8/49.

▲ **N. Y., Far Rockaway**—HIGH SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, Proj. E-793, Rockaway Vocational High School. $4,000,000. CD 1/29/43.

▲ **N. Y., Jamaica**—HIGH SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, Proj. E-193, Jamaica Vocational High School. $6,000,000. CD 8/13/45.

▲ **N. Y., New York**—HOSPITAL—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by Ferrenz & Taylor, 152 W. 42 St., Zone 36, 9 story Harlem General Hospital Addn. and reconstr. existing bldgs., Proj. HO-225. $7,000,000. Edwards & Hjorth, 67 W. 44 St., Zone 36, structural engrs. Jaros, Baum & Bolles, 415 Lexington Ave., Zone 17, mechanical engrs. CD 8/23/46.

▲† **N. C., Fort Bragg**—HOSPITAL—U. S. Eng., 308 Customhouse, Wilmington, 10 story 500-bed hospital, designed so as to be expanded into a 1,000-bed hospital, $8,800,000. CD 6/10/52.

Ore., Portland—CLASSROOM and LABORATORY—State Bd. Higher Educ., University of Oregon, Eugene, classroom and laboratory, Portland State College. $850,000.

▲ **R. I., Providence**—SCHOOL—City, School Dpt., 20 Summer St., plans by Harkness & Geddes, 726 Industrial Trust Bldg., elementary school (1st phase Willard Ave. Redevelopment Proj.), South Providence. $1,600,000. CD 10/15.

▲ **R. I., Scituate**—HIGH SCHOOL—Town, School Dpt., Main St., plans by Leland, Larsen, Bradley & Hibbard, 814 Statler Bldg., Boston, Mass., Junior-Senior High School, Rockland Rd. $1,000,000. CD 1/26/50.

▲ **Va., Norfolk**—HOSPITAL—Norfolk General Hospital Bd., Raleigh Ave., sketches by Vernon A. Moore, 716 W. 20 St., 9 story central wing. $3,000,000. CD 11/9/53.

▲ **Va., Portsmouth**—HIGH SCHOOL—City School Bd., City Hall, plans by J. Binford Walford & O. Pendleton Wright, 103 E. Carry St., Richmond, Junior High School. $1,000,000.

▲ **Wash., Seattle**—TEACHING HOSPITAL—University of Washington, Seattle, Zone 5, plans by Naramore, Bain, Brady & Johanson, 904 7 Ave., completion of teaching hospital. $8,525,000. CD 11/29.

▲ **B. C., Coquitlam**—HOSPITAL UNIT—B. C. Prov. of Dpt. P. Wks., Victoria, plans by C. D. Campbell, c/o owner, 300-bed hospital unit at home for the aged. $4,000,000.

Ont., Wallaceburg—HOSPITAL—Sydenham District Hospital Bd., 732 Elizabeth St., plans by Brennan & Whale, 30 Bloor St. W., Toronto, 71-bed and 24-bassinett hospital. $800,000. CD 3/10/52.

▲ **Que., Montreal**—HIGH SCHOOL—Montreal Protestant Bd. School Comm., 3460 McTavish St., plans by Featherstonhaugh, Durnford, Bolton & Chadwick, 901 Victoria Sq., Cote Des Nieges High School, Lavoie Ave. $2,000,000.

▲ **Que., Sherbrooke**—HOSPITAL—Province of Quebec, Quebec City, plans by Royer, Audet & Poulin, 1115 Prospect St., mental hospital. $10,000,000. CD 11/30.

COMMERCIAL BUILDINGS

▲ **Calif., Desert Hot Springs**—DWELLINGS—A. W. Wertz, 133 N. Layton Dr., Los Angeles, plans by AAA Drafting Service, 12401 Wilshire Blvd., Los Angeles, 140 frame, stucco dwellings. $1,000,000.

▲ **Calif., Long Beach**—HOSPITAL—Long Beach Osteopathic Hospital, 2776 Pacific St., plans by Hugh R. Davies, Security Bldg., 96-bed hospital, $1,254,000.

▲ **Calif., Los Angeles**—OFFICE—Gershon-Scott Corp., 6399 Wilshire Blvd., plans by Douglas McLellan & John Fortune, 816 W. 5 St., 13 story office. $3,000,000.

▲ **Kan., Wichita**—SCHOOL—Catholic Diocese of Wichita, 445 N. Emporia St., plans by Thomas, Harris, Calvin & Assocs., 321 W. 2 St., and Feagins & Kirsch, 4007 E. Kellogg St., Catholic high school. $1,000,000.

▲ **Md., Glen Burnie**—DIAL CENTER—Chesapeake & Potomac Telephone Co., 5 Light St., Baltimore, Zone 2, dial center bldg., dial phone equip. $1,000,000.

Mass., Methuen—HOSPITAL—Bon Secours Hospital, c/o Chancery Office, 1 Lake St., Brighton, plans by Curtin & Riley, 45 Newbury St., Boston, Mass., 100-bed chronic hospital addn. $730,000-$1,000,000.

▲ **Neb., Omaha**—OFFICE—Northwestern Bell Telephone Co., 19 and Douglas Sts., plans by L. A. Daly Co., Insurance Bldg., office bldg., 19 and Dodge Sts. $3,500,000. CD 6/7/51.

▲ **N. Y., New York**—APARTMENT—Eastmore Realty Corp., 340 W. 58 St., Zone 19, plans by Leo Stillman, 332 E. 149 St., Zone 51, 10 story apartment, 1441-55 Second Ave. $1,500,000.

▲ **N. Y., New York**—APARTMENT—Owner, c/o H. D. Lehds Co., 10 Rockefeller Plaza, Zone 20, 15 story apartment, Madison Ave. and 89 St. $1,000,000.

▲ **N. Y., New York**—CHURCH, RECTORY—Roman Catholic Church of The Holy Name, 315-325 E. 47 St., Zone 17, plans by Eggers & Higgins, 100 E. 42 St., Zone 17, 1 story church and 3 story rectory, at site. $2,000,000.

▲ **O., Cleveland Heights**—HOSPITAL—Montefiore Home, 3151 Mayfield Rd., Zone 18, 2 story hospital addn. for care of chronically ill aged persons, approx. 200-beds. $1,500,000.

▲ **O., Kettering**—HOUSES—Goodwin & Leckrone, Inc., George N. Leckrone, pres., 4334 Trails End Dr., Dayton, 275 homes along Marshall Rd. in Kettering Village, bordered on east by Marshall Rd., on south by Kettering Corp. limit, on west by proposed exten. of Paul Ackerman Blvd., on north by other developments. $5,500,000.

▲ **O., Mansfield**—MASONIC TEMPLE—Masonic Lodges, Mansfield, masonic temple, Park Ave. west in downtown area. $1,000,000.

▲ **Tex., Fort Worth**—HOMES—Wedgewood Land Co., c/o E. L. Baker, pres., 2300 Winton Terrace W., plans by Horton & Wright, 3619 W. 7th St., development of Wedgewood Addn. on Granbury Rd., 570 homes, two elementary schools, three parks, shopping center, Junior High School. $8,000,000. Hare & Hare, 110 W. 10 St., Kansas City, Mo., consult. engrs.

▲ **Ont., Toronto**—HOUSING—R. S. Hiscock, 28 Crestland Ave., 150-unit housing subdivision. $1,700,000.

INDUSTRIAL BUILDINGS

▲**Ind., Buffington**—CEMENT PLANT—**Universal Atlas** Cement Co., 208 S. La Salle St. Chicago 4, Ill., cement plant, $7,000,000.

▲ **Mo. Kansas City**—SERVICE SHOPS, etc.—Max Philippson & Peter F. Pasbjerg & Co., Inc., 18 Beaver St., Newark, N. J., 4 story bsmnt. aluminum and glass service shops and warehouse, offices, 14 and Baltimore Sts. $1,350,000. International Business Machines Corp., 1022 Baltimore St., Kansas City, Mo., lessee.

▲ **O., Beverly**—GENERATING UNIT—Ohio Power Co., 301 Cleveland Ave. S.W., Canton, constr. 225,000 kw. steam-electric generating unit at Muskingum River Plant, near here $29 600 000.

▲ **Texas**—GASOLINE PLANT, etc.—Texas Natural Gasoline Corp., Robert Lee, natural gasoline plant, $2,275,000; gas compressor plant unit, $750,000; field pipe line gas gathering sys. $90,000, between Robert Lee and Silver.

▲ **Tex., Beaumont**—GRAIN ELEVATOR, etc.—Trans-Gulf Corp., c/o George J. Schaumburg, engr., 2678 Laurel St., Beaumont, grain elevator, $1,750,000; Warehouse No. 1, $1,250,000; Warehouse No. 2, $1,000,000; auxiliary bldgs., $275,000; water sys. $65,000; drainage, $85,000; area and road paving, $100,000; railway trackage, $90,000; lighting, $65,000; 600 ft. dock, $750,000, on 87 acre port property across Neches River from Beaumont in Orange Co.

▲ **Tex., Lufkin**—PLANT—Southland Paper Mills, Lufkin, newsprint pulp plant production expansion $15,000,000. CD 4/7.

▲ **Wis., Milwaukee**—PLANT—Universal Atlas Cement Co., 208 S. La Salle St., Chicago 4, Ill., clinker grinding plant. $3,000,000.

UNCLASSIFIED

▲ **Louisiana**—AERIAL TRAMWAY—**The California Co.**, Leeville, will not construct aerial tramway, $1,500,000. Project abandoned. CD 11/26.

▲ **North Carolina**—RURAL DISTRIBUTION LINES—South River Electric Membership Corp., Dunn, N. C., 175 mi. electric distr. line, 33 mi. 46 KV transmission line, sub-station facilities and sys. imprvs., Cumberland Co. $1,270,000. CD 5/22/47.

Oklahoma—PARK—State Planning & Resources Bd., State Capitol Bldg., Oklahoma City, plans by Black & West, Tri-State Bldg., Tulsa, swimming pool, two duplex rental cabins, lodge bldg. fisherman's lodge, Sequoyah State Park (Negro State Park), near Okay. $584,000. CD 5/27.

Tex., Alpine—MINING FACILITIES—Universal Service Corp., c/o Donald Peters, vice pres., 3715 Gramercy St., Houston and c/o James L. Young, pres. Resources Eng. Corp., Grand Junction, Colo., const facilities for uranium mining production in Big Bend area between area Alpine and Presidio. $500,000. E. J. Longyear Co., Foshay Tower, Minneapolis, Minn., consult. engr.

▲ **Canada**—RADAR WARNING and CONTROL SYSTEM—Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., radar warning and control system in mid-Canada radar system at about 55th Parallel which will be run across Canada, $10,000,000.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
December 27 Connecticut December 29 Maine
STREETS AND ROADS
December 27 Connecticut
December 28, January 4, 5 Massachusetts

▲† **Me., Bangor**—AIRFIELD PAVEMENTS—BA On Or About 4/15—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., airfield pavements FY 55, incl. heavy duty parking apron and taxiway apron access, heavy duty taxiway, light duty parking apron and taxiway access, etc., Dow Air Force Base, ENG-19-016-55-72, $4,000,000-$4,500,000. Plans deposit $25. CD 11/23.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
B. Perini & Sons, Inc., 73 Montwaite Ave., Framingham, Mass. LB $3,753,194. Contr. 51-090 hy. and bridge Weston, Wayland and Natick. Bids Dec. 14. CD 11/23.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 7 Pennsylvania
STREETS AND ROADS
December 30 New Jersey January 7 Pennsylvania

▲† **N. Y., Plattsburgh**—HOUSING, etc.—BA 1/11—U. S. Eng., 80 Lafayette St., New York, Zone 13, housing and utilities, FY 55, at Air Force Base. $3,000,000-$5,000,000. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, Zone 17, engrs. CD 7/16.

▲† **N. Y., Plattsburgh**—BUILDINGS, UTILITIES—BA 1/18—U. S. Eng., 80 Lafayette St., New York, Zone 13, bldgs. and utilities, FY 55 at Plattsburgh Air Force Base. $5,000,000. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York Zone 17, engrs. CD 12/15.

▲† **New York**—BA About 2/2—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, excavation approx. 2,000,000 cu. yd. glacial till for Robinson Bay Lock, St. Lawrence Seaway, St. Lawrence River, Contr. No. 2, Serial CIVENG-30-023-55-40 (for the St. Lawrence Seaway Development Corp.), 3½ mi. northnortheast of Massena, St. Lawrence Co. Plans deposit $25. CD 9/9.

▲† **New York**—BA About 2/15—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, 2,500,000 cu. yd. earth excavation, Grass River Lock Excavation. CD 9/9.

▲† **N. Y., Rome**—FACILITIES—BA 2/15—U. S. Eng., 80 Lafayette St., New York Zone 13, NAVARHO facilities, structures, FY 55, Griffiss Air Force Base. $1,000,000-$3,000,000. Wilcox & Erickson, 11 E. 44 St., New York, Zone 17, engrs. CD 10/6.

▲† **N. Y., Plattsburgh**—SAC SPECIAL PACKAGE, etc.—BA 3/11—U. S. Eng., 80 Lafayette St., New York, Zone 13, SAC special package and ammo storage, FY 55 at Air Force Base. $1,000,000-$3,000,000. CD 7/16.

▲† **New York**—BA About 3/15—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, 12,000,00 cu. yd. earth excavation, Long Sault Canal excavation and dike constr. CD 11/3.

▲† **N. J., Fort Monmouth**—HOSPITAL—BA 6/23—U. S. Eng., 80 Lafayette St., New York 13, N. Y., 100-200 bed hospital, FY 52. $1,000,000-$3,000,000. Ziegler, Childs & Paulson, 921 Bergen Ave., Jersey City, archts. CD 1/20.

▲† **New York**—BA About 6/15/56—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, 60,000 cu. yd. rock excavation, Thousand Island Sect. Channel Dredging. CD 9/9.

▲† **New York**—BA About 9/15/56—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, 3,100,000 cu. yd. earth excavation, Cornwall Island South Channel dredging and canal excavation downstream of Grass River Lock. CD 9/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Fischback & Moore, Inc.**, 226 E. 41 St., New York 17, N. Y., LB $2,352,806, furnishing, installing cable equip. for Rockaway Line, IND Div., NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 3. CD 10/28.

▲ **Rao Electrical Equipment Co., Inc. & Arc Electrical Constr. Co., Inc.**, 739 Second Ave., New York 16, N. Y., CA $1,704,592, cable equipment, Contr. P-96, Manhattan and Queens Boros, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Nov. 12. CD 10/28.

▲ **Edenwald Contr. Co. & Anthony Grace & Sons, Inc.**, 151-45 6th Rd., Whitestone, N. Y., LB $1,344,418, paving, utilities and piles for Hangar No. 9, New York International Airport, Contr. NYA-430.002, IDLEWILD, N. Y. The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Dec. 14. CD 11/19.

▲ **Wright Contg. Co.**, 504 25 Ave., Columbus, Ga., CA, $1,129,258, interchange structures on Kenilworth and Deane Aves. N.E., WASH., D. C. D. C. Govt. Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C. Bids Nov. 16, awarded Dec. 15. CD 11/19, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **S. S. Silberblatt, Inc.**, 25 W. 45 St., New York 19, N. Y., CA $4,587,000, general constr. and fdn.;
Paramount Plumbing & Heating Co., 336 E. 92 St., New York 28, N. Y., CA $536,300, plumbing for Forest HOUSES, Proj. No. NYS-57, Sec. II, incl. Bldgs. Nos. 8 to 15 (inclusive) and gymnasium of Bldg. 10 in area bounded generally by E. 164 St., Jackson Ave., E. 165 St., Tinton Ave., E. 163 St., Trinity Ave., NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Oct. 26. CD 10/28, under LB.

▲ **Sunset Village Homes**, c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J. Owner Builds. $1,-500,000. 111 HOUSES on tract at Ann St. and Sunset Blvd., BERNARDSVILLE, N. J.

▲ **Ritter Brothers**, 1511 N. Cameron St., Harrisburg, Pa., LB $3,944,000, general constr.;
The Hughes Corp., 245 Charles St., Luzerne, Pa., LB $675,000, air-conditioning and ventilation;
Howard P. Foley Co., 31st and Revere Sts., Harrisburg, Pa., LB $674,000, electrical work;
Otis Elevator Co., 502 N. 19 St., Phila., Pa., LB $357,777, elevators for 11 story Commonwealth OFFICE BLDG., HARRISBURG, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Dec. 15. CD 11/17.

▲ **Owner**, c/o Benjamin Friedman, Church Lane and Chester Ave., Yeadon, Pa. Separate Contracts. $1,-377,000. RESIDENTIAL DEVELOPMENT, Germantown Pike, NORRISTOWN, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

▲ **Ragnar Benson, Inc.**, 2 Gateway Center, Pittsburgh, Pa., CA Est. $13,000,000. 14 story, 826,000 sq. ft. steel SCHOOL of MEDICINE, NURSING, DENTISTRY and PHARMACY, PITTSBURGH, PA. University of Pittsburgh, 5th and Bigelow Blvd., Pittsburgh, Pa. CD 5/20.

▲ **Landau Bros. Building Co.**, 125 First Ave., Pittsburgh, Pa., CA Est. $1,000,000. 3 story bsmnt., 120x180 ft. brick, block, steel DEPARTMENT STORE and OFFICE BLDG., PITTSBURGH, PA. W. T. Grant Co., 130 W. 42 St., New York, N. Y. Arthur E. Tennyson, 666 Washington Rd., Pittsburgh, Pa., archt. CD 6/20/45.

SOUTH

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **VIRGINIA**—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington,
Robertson-Henry Co., Box 2078, Huntington, W. Va., CA, $1,077,915, Proj. 1F10-1G2 constr. tunnel and bridge from Rt. U. S. 60 to Otter Creek Bridge No. 2 Blue Ridge Parkway, Amherst and Rockbridge Counties. Bids Nov. 23, awarded Dec. 15. CD 11/29, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **American Locomotive Co.**, 30 Church St., New York, N. Y., CA $2,096,753, Nuclear POWER PLANT, FORT BELVOIR, VA. U. S. Atomic Energy Comn., P. O. Box 59, Lemont, Ill. CD 9/7.

▲ **J. A. Jones Constr. Co.**, Box 1818, Shreveport, La. CA $1,159,896, est. $1,229,000. 4 story MUNICIPAL BLDG., BATON ROUGE, LA. City, Wesley R. Wurtz, city parish purch. agt., Court House, Baton Rouge, La. Bids Dec. 8, awarded Dec. 10. CD 12/13, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
January 4 Wisconsin
STREETS AND ROADS
December 29 Michigan January 4 Wisconsin

▲ **Mich., Pleasant Ridge**—BA 1/19—Southeastern Oakland County Water Auth., 23646 Woodward St., water sys., 97,412 ft. 16- to 36-in. concrete pipe line, Alt. c.i. pipe, 22 concrete valves, gate valves, etc. $6,000,000. Plans deposit $50 refundable, Ayres, Lewis, Norris & Day, 500 Wolverine Bldg., Ann Arbor, engrs. CD 11/18.

BIDS ASKED—BUILDINGS

▲ **Ind., South Bend**—FINE ARTS—BA 1/5—St. Mary's College, South Bend, fine arts bldg. $1,500,000. Naess & Murphy, 90 E. Jackson St., Chicago 4, Ill. archts. CD 10/11.

SOON LETS CONTRACT—BUILDINGS

▲ **Ill., Chicago**—APARTMENT, etc.—247 E. Chestnut St. Bldg. Corp., c/o A. Epstein & Sons, archts., 2011 Pershing Rd., Zone 9, soon lets contract 25 story, concrete apartment with garage. $3,500,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Old Trails Bldg., Indianapolis,
Traylor Brothers, Box 66, Evansville, Ind., LB $5,727,010, Contract C-15, C-16 Indiana East-West Toll Road, Porter Co. Bids Dec. 8. CD 11/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Herlihy Mid Continent Co.**, 135 S. La Salle St., Chicago 3, Ill., LB $1,841,650, Parking GARAGE, Huron, Fairbanks, St. Clair and Superior Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. Awarded Dec. 3.

▲ **Carl F. Mohs & Assocs.**, 2550 University Ave., Madison, Wis., LB, $1,741,077 general contract; total LB $2,326,605, STATE HOSPITAL, MENDOTA, WIS. State Dpt. P. Welfare, Madison, Wis. Eschweiler & Eschweiler, 702 E. Mason St., Milwaukee, Wis., archts. CD 7/19.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ † **North Dakota**—BA About 2/1—U. S. Eng., Riverdale, Stage II Garrison Dam spillway stilling basin, Serial No. CIVENG-32-015-55-37. Plans deposit $10. Bids Nov. 5 rejected, LB $6,159,006. CD 11/12, under LB.

BIDS ASKED—BUILDINGS

▲ **Tex., Orange**—PLANT—Bids Asked—Acheson Dispersed Pigments Co., c/o Perch C. Buck, vice pres., Orange, plastic plant, $4,500,000; warehousing, $250,-000. CD 11/11.

SOON LETS CONTRACT—BUILDINGS

▲ **Kan., Wichita**—UNION CENTRAL—Union Center, Inc., Union National Bank Bldg., soon lets contract Union Central Bldg., $2,000,000. Overend & Boucher, Brown Bldg., archts. CD 12/11/53.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **O'Rourke Constr. Co.**, 1001 W. Commerce St., Dallas, Tex., CA Approx. $7,000,000. FOOD DISTRIBUTING CENTER BLDGS., GARLAND, TEX. Safeway Stores, Inc., 4929 Beeman St., Dallas, Tex. CD 1/19.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
January 5 California

BIDS ASKED—BUILDINGS

▲ **Utah, Orem**—HIGH SCHOOL—BA 2/1—Alpine School Dist. Bd. Educ., Clarence D. Ashton, chn. American Fork, high school. $1,500,000. William Rowe Smith, 1555 E. 3900 South St., Salt Lake City, archt.

▲ **Utah, Provo**—AMMONIA PLANT—Bids Asked—Columbia Geneva Steel Div., U. S. Steel Corp., Russ Bldg., San Francisco, Calif., 200-tons per day anhydrous ammonia plant at Orem. $18,000,000-$19,000,000. Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh, Pa., engr. CD 1/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Merritt-Chapman & Scott Corp.**, 260 Madison Ave., New York, N. Y. and **Savin Constr. Corp.**, 10 Village St., East Hartford, Conn., CA, $14,735,107. Gorge High Dam on Skagit River, SEATTLE, WASH. City, County-City Bldg., Seattle 4, Wash. Bids Dec. 1. CD 12/6, under LB.

▲† **C. J. Montag & Sons**, 7805 N. E. Halsey St., Portland, Ore., **Carl M. Halvorson**, 10626 S. W. Packing Hy., Portland, Ore., **Cascade Contractors**, 1300 W. Nickerson St., Seattle, Wash., and **Austin Co.**, 2930 4th St. S., Seattle, Wash., LB $12,661,246, est. $13,523,851, non overflow dam, The Dalles Dam, Wasco Co., CIVENG-35-026-55-70, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Dec. 15. CD 10/12.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
Baldwin Contg. Co., P. O. Box 269, Marysville, Calif., LB $1,576,913, surf. 13.1 mi. between Ben Ali and Roseville, Sacramento and Placer Counties. Bids Dec. 8. CD 11/17.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
Gordon H. Ball & San Ramon Valley Land Co., Camille Ave., Danville, Calif., CA $1,908,844, grading, paving 6 bridges, 4 mi. between Delano Underpass and Kern-Tulare Co. line, Kern and Tulare Counties. Bids Nov. 24, awarded Dec. 7. CD 12/8, under LB.

(Proposal Advertisements see pp. 52 to 54)

UNIT PRICES

Table Rock Dam, Missouri, Bid 13% Under Estimate

A five-company combination headed by Morrison-Knudsen bid low at $24.4 million to build Table Rock Dam on the White River in Taney County, Missouri. U. S. Corps of Engineers, with an estimated cost of $28 million for the job, opened bids on October 6 from eight combinations of 31 contractors.

Guy F. Atkinson Company and United Construction Company submitted the second-low bid of $24.7 million, 1% higher than the successful bid.

Table Rock Dam and Reservoir will provide flood control for a million acres of the White River Valley in Missouri and Arkansas. Four 50,000-kw generators, not yet contracted for, will produce about 483 million kwhr of electric power yearly. Operation with two generating units is scheduled for July 1958. Work started Nov. 1.

Low bidder's price of $8.48 per cu yd mass concrete is 11% under second or $1.2 million less. Other unit prices see-sawed between the two low bidders whose final difference dwindled to $298,000.

Unit prices diverged from the estimate most on the "maintenance of access road" item. Where the government's figure was $16,371 per year, the successful contractor bid $1,000 and second bidder $4,500. Highest amount mentioned was $6,300.

The dam is a concrete-gravity section with earth embankment extensions. The 1,600-ft concrete section contains a controlled spillway overflow section in the main river channel and bulkhead non-overflow sections on each side of the spillway. Embankment sections of 4,800 ft will connect the concrete section with adjoining hills to complete the valley barrier. Maximum height of the dam above the stream bed is 261 ft, total length 6,400 ft. Quarries in the dam vicinity will yield aggregates for concrete.

The spillway section, adjacent to the powerhouse, will have radial-type crest gates. Conduits through the spillway base, controlled by hydraulic slide gates, regulate the reservoir level and divert the river during construction.

The contractor will have to haul equipment and materials from a railroad siding 4½ mi from the job site.

Prevailing wage rates in the Table Rock area give $3.00 per hour to skilled labor, $1.35 to common labor.

Bidders include:

1C Morrison-Knudsen Co., Inc., Boise, Idaho. Utah Constr. Co., San Francisco Calif. General Constr. Co., Seattle, Wash.; H.B. Zachry Co., San Antonio, Tex.; and Ralph E. Mills Co. Inc., Salem, Va. . . . $24,438,739
2 Guy F. Atkinson Co., S. San Francisco, Calif. and United Constr. Co., Winona Minn. . . . 24,736,385
8 White River Constructors, Charlotte, N. C. (J.A. Jones Constr. Co., Charlotte, N.C.; Chas. H. Tompkins Co., Washington, D.C.; Brown & Root, Inc., Houston, Tex.; and Wunderlich Contg. Co., Omaha, Neb.) . . . 29,869,330
EE U.S. Corps of Engineers, Little Rock, Ark. 27,986,187

Bids: 10-6-54 Item	Unit	Quantity	Unit Prices 1 C	2
Care & divert river..	ls	1	$971,717	$1,050,000
Exc, common	cy	720,000	0.60	0.74
rock	cy	270,000	3.50	2.00
borrow	cy	2,650,000	0.37	0.24
Strip right abutment	ls	1	26,500	78,000
Prelim rock cleanup.	Csf	4,500	10.00	10.00
Drill,				
close line	sf	12,000	1.50	1.25
core, 3" ϕ holes	lf	34,600	4.60	4.10
diamond, dr ϕ 3"	lf	28,000	4.30	3.10
1½"	lf	57,000	2.10	1.60
core, 10" ϕ, conc.	lf	200	27.10	31.00
percussion	lf	50,000	1.00	0.55
Set pipes for grt emb	ea	440	18.50	52.00
Move drill onto grt hl	move	2,600	6.75	7.25
Pressure testing	test	2,600	8.50	7.25
Furn cmt for grt	bag	50,000	1.49	1.15
Pressure grouting	cf	50,000	2.20	1.70
Compact fill, imperv.	cy	2,500,000	0.125	0.11
perv	cy	53,000	0.20	0.55
Backg & filter mat'l:	cy	95,000	3.50	1.15
Dumped riprap	cy	50,000	2.05	1.50
Spalls	cy	83,000	1.55	2.00
Rock fill	cy	540,000	1.00	0.90
Addn roll compt.	roll-hr	500	15.90	14.00
Concrete:				
Still basn, baff, end sill	cy	28,500	15.000	16.00
Rdway, sidewk, parapets	cy	1,800	35.00	50.00
Thin slab, beam, column	cy	8,600	30.00	22.00
Spillway piers	cy	7,500	17.00	19.00
Training walls	cy	25,000	11.00	16.00
Mass, in dam	cy	1,160,000	8.48	9.50
Fndn in core trench	cy	750	24.80	18.00
Blended cmt, portland	bbl	712,500	4.00	4.10
nat'l	bbl	237,500	3.60	3.60
Porous conc pipe 8"	lf	33,000	2.50	1.25
Semicirc porous tile	lf	1,750	2.50	2.00
CMP semicirc 18"	lf	4,300	6.25	2.75
24"	lf	2,700	7.80	7.50
30"	lf	500	9.20	12.00
Pipe & fitg, CI	lb	210,000	0.565	0.55
steel	lf	235,000	0.53	0.45
Tainter gate trunnion anchorage	ls	1	185,000	175,000
48" house penstk vlv	ea	2	12,750	15,000
Handrail & fittings	lb	100,000	0.56	0.42
Gate, slide & blkhd & acces	ls	1	365,700	400,000
Sli gate pumps, motrs & piping	ls	1	43,700	30,000
Penstock				
gates, frames & gd	ls	1	304,700	275,000
gate hoists & supts	ls	1	118,900	125,000
& supportg frames	ls	1	366,750	375,000
Tainter gates & accessories	ls	1	445,150	450,000
hoists, supprts, & chns	ls	1	291,200	300,000
Trash rk, gd & lift beam	lb	574,000	0.22	0.28
Stop logs, grot plates-slots, lift beams	lb	230,000	0.28	0.28
Misc metal castings	lb	37,000	0.52	0.40
str stl	lb	110,000	0.375	0.50
Steel reinf	lb	4,050,000	0.124	0.11
Still basn & train wall anchors	ea	3,650	16.00	16.00
Safety treads	lf	1,700	3.90	1.60
Misc doors	ls	1	3,520	5,000
Copper waterstops	lb	45,000	1.70	1.25
Elec system	ls	1	205,150	178,500
Bituminous rdway	ls	1	21,950	32,000
Erosion control	ls	1	37,000	22,000
Spillway bridge	ls	1	239,900	250,000
Elevator tower	ls	1	57,800	55,000
Access tower	ls	1	27,800	25,000
Water supply & plbg	ls	1	27,000	20,000
Aux power system	ls	1	23,000	22,500
Auto sump pmps & piping	ls	1	6,250	5,000
Tile gages	lf	200	18.00	35.00
Piezometer instl, embankment	ls	1	5,000	6,000
P & fitg, penstk manolithic	ls	1	4,500	6,000
Measuring devices	ls	1	11,730	9,000
Roadway guardrail	lf	9,500	2.85	2.60
Maint acc rd, cal yr.	ea	3.667	1,000	4,500

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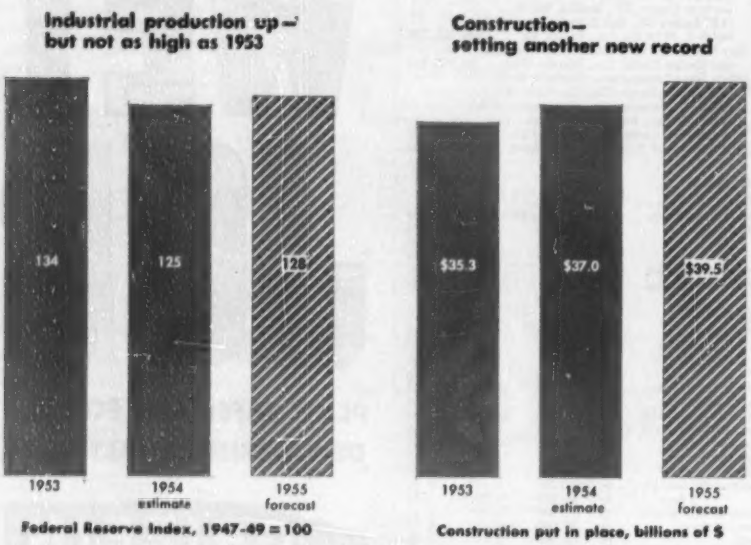
AURORA, ILLINOIS, U. S. A.

Outlook for 1955:



THE LONGER LOOK:

Construction has been major factor in keeping business up this year. The recovery should continue well into 1955

Thanks largely to the apparently endless climb of construction activity, business in general slipped less and began recovering earlier in 1954 than we had any right to expect a year ago. Now two major factors that had a lot to do with the decline in business—the reduction of business inventories and the cutback in government spending—have stopped their downward pull. Consumers, too, are feeling more optimistic. So the moderate but steady pace of business recovery promises to continue well into 1955.

• **Healthier inventories**—Along with the continued strength of construction, probably the single most important sign pointing to improved business is the end of the run-off in inventories. For about a year, starting with the last quarter of 1953, business has been cutting inventories at an annual rate of $4 billion. During the year before that, inventories had risen $7 billion.

This jolting turn-around—from a fast buildup of inventories to a determined cutting down—meant that consumers were buying more than stores were ordering for replacement, that manufacturers were using up raw materials faster than they were re-ordering. It pulled down industrial production far more than consumer sales, which actually held up pretty well during the readjustment.

Now businessmen feel inventories are in better relation to sales. In many lines, they are even rebuilding depleted stocks. Steel especially is showing the effect of new orders. Operations have risen from below 65% of capacity to above 80% in the last six months. Renewed heavy production schedules for automobiles, in flashy new models, also account for a big part of this rise.

• **Unshaken businessmen**—Business spending on new plant and equipment, which can vary widely from year to year and which calls the tune for industrial builders and machinery makers, should stay fairly firm in 1955. Though many postwar programs are complete now and some industries even have excess capacity, a survey by the McGraw-Hill Department of Economics indicates that industry plans to put 95% as much into capital spending in 1955 as in 1954.

These plans are only preliminary. They may be boosted during the year if business continues to improve at the present rate. Further, the figures do not include commercial firms, where spending seems certain to rise next year. So total capital spending for all U.S. business may well equal 1954.

In government spending, as in business inventories, the important point for the 1955 business outlook is that the decline appears to have come to a halt. Total government buying of goods and services should continue at about the present annual rate—a little short of $80 billion—throughout 1955. A small drop in federal expenditures will be offset by increased state and local government spending. The point is that there will be no overall decline in this sector to act as a drag on business.

• **Happier customers**—Consumer attitudes about spending, another vital factor in preventing a serious drop in business, looks even better now than it did a year ago. The latest survey by the University of Michigan's survey research center shows a rising proportion of consumers holding the view that this is a good time to buy houses, automobiles, and large appliances.

• **1955 forecasts**—Construction should benefit from these promising signs in all three basic sectors of the economy. Indeed, few industries can hope to match homebuilding for the increase expected in consumer spending. The 1955 forecast by the Departments of Commerce and Labor is for $15 billion of new residential construction put in place, compared with an estimated $13.3 billion for 1954. ENR, which reports the larger residential contract awards, forecasts a 4% gain over this year.

Though the government economists expect dollar value of industrial building put in place to drop, commercial and institutional building will be up by healthy amounts. ENR forecasts a 6% gain in awards for both industrial and commercial building. The government forecast of public construction put in place is $12.1 billion, against $11.5 billion estimated for this year, with gains of 16% in schools and 18% in highways. ENR expects a 19% gain in highway contracts and a 5% increase in non-residential public buildings (mostly schools).

In short, business has begun a moderate recovery that can be expected to proceed at a fairly steady pace for some months. All in all, business should be somewhat better than 1954. But 1955 is not likely to put many industries—other than construction—higher than the boom levels of 1953.

This Year's Home Fix-up Market

	Expenditures in five months	Expanded to twelve months
Alterations and improvements	$1,410	$3,375
Additions	333	800
Repairs and replacements	1,264	3,040
Total	**3,006**	**7,215**
How homeowner spends the money:		
For contract work	1,410	3,375
For purchase of materials	1,596	3,840
Total	**3,006**	**7,215**

It's Bigger Than We Thought

Census Bureau makes a scientific sampling of the home fix-up market, finds it runs somewhere around $7 billion

The enormous size of the home improvement and maintenance market has long been suspected by economists but never accurately measured. Now a Census Bureau survey pinpoints the potential of this market for the first time. Done earlier this year, details of the survey were published last week.

The survey comes up with an estimate of about $7 billion this year (table, above), in addition to the $13.5 billion that is going into construction of new homes. This big boost in homeowner spending—based on a scientific sampling survey for the first five months—boosts the total homebuilding and maintenance market to a new high of more than $20 billion for new construction, additions, improvements, and repairs. Of $7.2 billion added by homeowner expenditures, a surprisingly large portion amounting to nearly $3.4 billion is paid to contractors. On many of these contract jobs, the contractors install materials purchased in whole or in part by the owners. If cost of these materials were added to the value of the work performed by contractors, the total for contractor-installed home improvements would edge up toward $4 billion for this year.

Contractor services normally are employed for the bigger home improvement jobs. And those are the jobs where most of the $7 billion is spent. Census Bureau's survey last June—by personal interviews with householders selected on a tried and tested scientific basis—showed that homeowners who spent $1,000 or more accounted for nearly 30% of the total $3-billion expenditure in the first five months, while homeowners who spent $500 or more (including, of course, the first group) accounted for more than 50% of the total spending.

• **Few, but big**—Value of the bigger jobs in the total market is re-emphasized by the relatively small number of such jobs. Homeowners whose expenditures in the January-May period amounted to $500 or more represented less than 9% of the householders who spent money on home improvements. And the segment spending $1,000 or more took in only 3.2% of the owners who improved their properties in the first five months of 1954.

Though few homeowners spent as much as $500, a big majority of all homeowners spent something on property improvement during those months. Nearly 18 million of the 25 million owners made such expenditures in that period—more than 70% of the total. This percentage of active home improvers undoubtedly went up to a much higher figure—probably close to 100%—during the favorable working months that followed the survey.

As a result of the survey, federal construction analysts see a need for drastic revision of some of their monthly and annual estimates of building volume.

Under new residential construction, for example, the Bureau of Labor Statistics and the Commerce Department's Construction Industry Division have been estimating much too little for additions and alterations. The latest government estimates allow only $1.1 billion for this work in 1954 and forecast only $1.2 billion in 1955. Top statisticians now say the figure should be at least $3 billion a year.

Such a change would boost the total spending figure for all new construction in 1954 to $38.9 billion and to $41.3 billion.

Highway Bonds Still Blocked

The attempt by Louisiana's Governor, Robert Kennon, to put through the $50-million highway revenue bond issue which the voters turned down in November (ENR Dec. 2, p. 83) has run into another obstacle. A lower state court has just ruled that the State Highway Board cannot use part of the state gas tax as security for a bond issue without a constitutional amendment. State officials will appeal the case, and reports are that Kennon may even call the legislature into special session if the State Supreme Court upholds the lower court.

The bond issue was originally authorized last summer by the legislature. But its validity was clouded when it was included in a constitutional amendment and defeated at the November election.

St. Lawrence Power

It means much construction of many kinds

Much of the 900,000 kw of dependable power that eventually will be generated by the St. Lawrence River power project will stay right in the St. Lawrence Valley. That's the prediction of Robert Moses, chairman of the New York State Power Authority.

Moses also said last week that the authority had made a tentative agreement with Aluminum Co. of America to supply it on the American side with about one-third of the project's initial 700,000 kw output. Alcoa runs a smelter and research laboratories at Massena, N. Y., only a few miles away from the power project.

• **Come one, come all**—Said Moses: "We are particularly interested in attracting to this region new industries which seek dependable and reasonably inexpensive power." The area in New York state affected by the St. Lawrence project is the so-called "North Country," from Watertown near Lake Ontario to Plattsburg on Lake Champlain. Moses said his authority is looking for any type of customer. But he also noted that it couldn't wait until the valley is built up; it must sell power as fast as produced, in order to pay off its bonds.

(*B&F continued on page 49*)

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ALCO Wins Contract to Build Army Package Atom Reactor

American Locomotive Co.'s $2,096,753 low bid last week won the company a contract to design, build, and test-operate the Army Corps of Engineers' prototype portable atomic power plant.

ALCO beat 17 other bidders whose estimates ran up to $6.9 million for the job to be done along the Potomac River near Fort Belvoir, Va. According to Chairman Lewis Strauss of the Atomic Energy Commission, this is the first contract of its type on a lump-sum basis. AEC and the Corps estimated cost of the job at about $4 million when they asked for bids from 33 qualified firms last month. Of the 18 bids received, 12 ran lower than $4 million.

AEC and the Corps said that the second lowest bid was $2,462,355 and the third lowest was for $3,037,586, but refused to tell which firms made the bids. That means nine other bidders submitted proposals ranging between $3 million and $4 million.

The experimental reactor, to be called the Army "package" power reactor, is to be built in such a way that it can be taken apart, and transported in package by air. AEC and the Army Engineers hope to get data from the prototype model on construction, operation, and maintenance, plus an idea of the capabilities and limitations of this type of plant.

The 17 unsuccessful bidders were: Merrit-Chapman & Scott Corp.; Raymond Concrete Pile Co.; Arrowhead Constructors, a joint venture by Donovan Construction Co., Winston Bros. Co., C. F. Lytle Co., Green Construction Co., and Missouri Valley Constructors, Inc.; American Machine & Foundry Co.; Babcock & Wilcox Co. with Vitro Corp. of America; Bethlehem Steel Co.; Combustion Engineering, Inc.; Curtis-Wright Corp. with Ralph M. Parsons Co.; Ford Instrument Co.; Foster Wheeler Corp.; General Electric Co.; Glenn L. Martin Co.; Kidde Industries; Kuljian Corp.; Le Tourneau-Westinghouse Co. with Fluor Corp., Ltd.; North American Aviation, Inc.; and Stearns-Rogers Manufacturing Co.

Housing Starts Seem Likely To Pass 1.2 Million for Year

November housing starts totaled 103,000, largest number on record for the month. And, October also has set a record.

This brings the 11-month total to 1,122,800 units, the second highest on record, though it's 14% below the 1950 figure. So far this year, starts are 82% ahead of last year. And November was 26% ahead of last year. The normal seasonal decline from October to November was only one-third (in terms of number of units) of last year's decline.

Judging by the continued high level of starts, the 1954 total should be even more than 1.2 million units—probably close to 1,225,000. That would be 12% below the 1950 record.

There were practically no public housing starts in November. For the year so far, public starts are 17,800—about half what they were last year.

The Federal Housing Administration also said last week that it had received 52,700 applications for mortgage insurance in November—also a record for the month. Of these, 26,850 were for new construction.

Business Briefs . . .

• **Illinois Turnpike financing** is tentatively scheduled for the week starting Jan. 10. About $390 million worth of bonds will be offered, to finance 191 mi of toll roads (ENR Dec. 2, p. 79).

• **Caterpillar rehires**—Caterpillar Tractor Co. has recalled all the employes laid off at its Peoria plant in the last months of 1953.

• **Contractor failures** totaled 110 in November, according to Dun & Bradstreet. That's the highest for November in four years. For the first 11 months, total contractor failures are 1,175—also the biggest total in years.

• **Primary aluminum production** is estimated at 2.9 billion lb for this year by the Aluminum Assn. That would be about 16% over the 1953 record.

• **Chevrolet expansion** of $10 million is planned in the Buffalo area. The money will go for tooling and plant expansion. This division of General Motors Corp. has spent $55 million in the area this year.

• **$10-million shopping center** is planned by Jordan Marsh Co., of Boston, a unit of Allied Stores Corp. on a 180-acre tract at Peabody, Mass.

• **Luria Engineering Co.**, designer and producer of standardized steel industrial building and airport facilities, has taken a management contract with E. L. Cournand & Co., Inc., structural plastics maker of Havre de Grace, Md. The plastic firm's name is now Luria-Cournand, Inc.

Activity This Week

As reported to ENR
(in millions of dollars)

Amount of contracts let

	This Week	Cumulative 51 wks 1954	1953	% chge
Federal	$23.3	$1,258.1	$1,368.7	−8
State and municipal	98.6	4,872.9	4,873.6	0
Total public	121.9	6,131.0	6,242.3	−2
Total private	202.6	8,064.9	8,548.9	−6
U. S. total	$324.5	$14,195.9	$14,791.2	−4
Contracts by type of work				
Waterworks	$2.1	$240.0	$238.0	+8
Sewerage	4.3	382.2	419.8	−9
Bridges	9.2	494.9	671.3	−26
Highways	36.1	1,851.8	1,741.4	+6
Earthwork, waterways	21.7	324.0	344.0	−6
Buildings:				
Public, excl. hsp.	30.5	1,720.8	1,676.5	+3
Housg., public	5.6	255.1	378.0	−32
Housg., private	74.4	4,206.3	3,423.4	+23
Commercial	25.1	1,404.0	1,135.1	+24
Industrial	48.9	1,861.8	3,131.6	−41
Unclassified	66.6	1,455.0	1,637.1	−11
Total	$324.5	$14,195.9	$14,791.2	−4

NOTE: Minimum size projects included are: Waterworks and waterways, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)	Week of Dec. 16 1954	Cumulative 50 Wks 1954	% chge '53-'54
Corporate securities	$51.0	$2,571.7	−39
State and municipal:			
All except housing	221.2	5,335.7	+28
Housing	...	91.0	−65
Federal loans	3.1	113.1	+1
Federal aid	...	673.0	−13
Total non-federal	$274.2	$8,784.5	−8
Federal appropriations:			
In U. S.	...	$2,073.3	+32
Outside U. S.	...	33.2	+15
Total new capital	$274.2	$10,891.0	−2

ENR cost and volume indexes, 1954

		Base years = 100 1913	1926	1949
Construction cost	12/16	643.46	309.31	134.89
	12/2†	643.31	309.24	134.86
Building cost	12/16	456.99	247.03	129.90
	12/2†	456.77	246.92	129.84
Volume	Nov.	522	212	151
	Oct.	423	172	122

† Official ENR index for Dec. 1.

Welfare Fund Handling Under Fire

Employers and unions both subject to current criticism of laxity in management of multi-billion-dollar benefit plans

Of interest—but no source of pride—to the construction industry is an appeal scheduled to come before the Appellate Division of the New York Supreme Court next week. The legal action is based, in part, on kickbacks allegedly paid to union officials in the building trades.

The appeal had its origin in the comprehensive investigation of union welfare funds conducted this year by the Insurance Department of New York. Basis of the appeal is revocation of the license granted to a New York City agent, handling the welfare funds of 21 AFL unions. Four unions belonging to the building trades—operating engineers, laborers, lathers, and pavers and road builders—are involved.

Transcending the transitory interest in local scandals are the basic problems of administering the vast, complex, and socially significant, multi-billion-dollar business into which union welfare funds have mushroomed. A report of the investigation and the department's recommendations, soon to be released, are now before Governor Dewey. Much of the onus for maladministration is expected to be placed on employers instead of unions.

• **Investigation**—The investigation was precipitated by the murder, in 1953, of T. F. Lewis, Yonkers raceway labor boss and president of Local 32-E, AFL Building Service Employees Union. Out of the investigation came the charges against the New York City insurance agent, A. C. Corcillo. Included in the charges are alleged "kickbacks"—ranging from $1,061 to $5,907 over a two-year period—to union officials serving as trustees of building trades welfare funds handled by the agent.

• **Responsibility**—Some pin the responsibility on a human failing—dishonesty; others place it on the commission practices of insurance companies—which are in business to make a profit; others nail the employers—who are accused of shirking their moral and legal responsibilities as trustees. Most agree that too much emphasis has been placed on abuses committed by a relatively small handful of union officials.

• **Magnitude of problem**—Throughout the nation, contributions to pension and welfare plans are running at the rate of $4 billion a year. In New York alone, contributions exceed $365 million a year (90% coming from employers); more than three million citizens (25% of the state's population) are covered; and over $2.5 billion have already been accumulated in cash and investments.

Adding to the complexity of the problem—especially in the building trades—is the heterogeneous nature of pension and welfare funds. Dissimilarities appear in the amount, type and extent of benefits; some are unilaterally and some are jointly administered; some represent a multiplicity of union locals; some cover a few contributing employers while in others the number exceeds a thousand; some are audited frequently, others are not; in some, union members are informed periodically about the progress and operation of the fund, in others they are not.

• **Inadequate safeguards**—Most authorities agree that the growth of welfare funds has far outdistanced existing safeguards. Present protection lies in: the integrity of the trustees; principles of common law relating to trusts; statutory requirements relating to "legal" investments; laws regulating the complex operations of insurance companies.

Little protection—contrary to the impression of some—is afforded by federal income tax regulations. These relate primarily to the qualification of contributions for income tax deductions. The protective provisions of Sec. 302 of the Taft-Hartley Act are also relatively ineffective. Once a collectively bargained and jointly administered plan is legally established, the individual gets no more protection—aside from that afforded by the required audits—than his trustees are able or willing to give. The Corcillo incident is an illustration in point.

• **Reasons**—Much of the maladministration stems from the youth of the programs. Most of their growth has occurred since 1942. The principal stimuli were: liberalization of federal income tax policies on business expense deductions; federal wage stabilization policies which preferred fringe benefits to wage hikes; and NLRB's finding that welfare benefits are proper subjects for collective bargaining.

So far, no generally accepted standards have been devised to serve as guides to trustees. Experience to date has been too brief to accumulate any wealth of administrative skill or wisdom. The situation has invited the use of insurance broker-consultants, considered by welfare fund specialist Harold Faggen as a "detrimental influence on trusteed funds." Some trustees, such as those for the New York bricklayers, have retained banks and welfare fund consultants for advice.

• **Union views**—Irregularities in welfare fund administration have become a major headache of responsible union officials and point up one of the ticklish problems still to be faced in the forthcoming union merger talks.

AFL president Meany has stressed the possible need for additional legislation to preserve the sanctity of welfare funds. CIO president Reuther, on the other hand, looks to more rigid self-regulation, and acceptance of the principle that union autonomy does not stand above corruption.

At its recent convention, the CIO unanimously adopted a code to eliminate unethical practices, and established its own antiracketeering committee on a permanent basis.

• **Suggestions**—Looking to elimination of trouble sources, especially in insured plans, some authorities have suggested new insurance legislation. This should be designed, it is said, to eliminate the commission factor in direct union-insurance company dealings, and the possibility of a broker also playing the role of a consultant. Other suggestions are the formation of insurance companies by unions, and the extension of self-insurance.

• **Significance**—It is felt by many that the welfare of the employer is also at stake. "As a matter of enlightened self-interest," said A. J. Bohlinger, New York State Superintendent of Insurance, "employers have a duty to participate in the administration of union welfare funds." Poor fund management, he indicated, may result in union demands for increased contributions to furnish benefits expected—and could cause the federal government to step in and take over the field with its own program.

Capital Spending Plans for 1955 . . .

Here is Good News About Business Prospects

In 1955, American industry is now planning to spend within 5 per cent of the amount it is spending this year on new plant and equipment. This is the tensely awaited result of a check-up just completed by the McGraw-Hill Department of Economics.

Hundreds of companies, by far the largest number in the eight-year history of these McGraw-Hill surveys, cooperated in the check-up. Combined, they represent 29 per cent of all industrial employment and over 60 per cent of employment in the industries where capital investment is highest. Such a broad cross section constitutes a reliable gauge of the plans of industry as a whole.

PLANS FOR CAPITAL INVESTMENT

	MILLIONS OF DOLLARS			Percent Change 1954-1955
	1953 ACTUAL*	1954 ESTIMATED*	1955 PLANNED	
All Manufacturing	$10,026	$ 9,249	$ 8,598	—7%
Petroleum Industry†	4,600	4,875	4,920	+1
Mining	506	380	311	—18
Railroads	1,312	851	769	—10
Other Transportation and Communications	2,954	2,922	2,640	—10
Electric and Gas Utilities	4,548	4,274	4,206	—2
ALL INDUSTRY	23,271	21,784	20,727	—5

*United States Department of Commerce; Chase National Bank; McGraw-Hill Department of Economics

†Petroleum refining, included under both "All Manufacturing" and "Petroleum Industry," is included only once in the total

What is the meaning of these plans, detailed by the table below, for capital investment next year? Is it good or bad news, so far as it concerns the prospect of continuing prosperity? It is to this crucial question that this editorial is addressed.

Key to Prosperity

It is not only good but very important business news that American industry plans to spend in 1955 almost as much for new plant and equipment as it is spending this year. The reason it is important is that a high level of activity in the capital goods industries is universally recognized as a particularly potent ingredient of prosperity for the nation as a whole. A dollar spent for capital goods is spent again and again for wages and materials. Its stimulating effects, called by economists multiplying effects, move through the economy in much the same way that a pebble tossed into a pond creates a widening circle of ripples. This is one reason why there is such intense business interest in the surveys of plans for capital investment.

Here are the principal reasons why the results of the McGraw-Hill survey are a good omen for continuing prosperity:

1. American industry is demonstrating that it does not need the stimulus of war-created shortages, or a rearmament boom, in order to maintain a very high level of capital investment.

The slight decrease now planned for 1955 will still maintain a level only about 11 percent below the all-time peak attained in 1953 under the stimulus of a defense expansion boom.

2. Capital investment promises not merely to stabilize at a high level, but actually to increase as 1955 goes on and thus give renewed stimulus to business.

The level of investment now planned for 1955 by *industry* — manufacturing, petroleum, mining, transportation, communications and utilities — is within 5 per cent of 1954. Contract awards for *commercial* construction — stores, office buildings, warehouses and other service establishments — as compiled by the McGraw-Hill publication ENGINEERING NEWS-RECORD, indicate a substantial increase in 1955. Thus total capital expenditures by *all business* may be very close to this year's total.

Actually, in the fourth quarter of 1954, business capital expenditures, as reported to the U. S. Department of Commerce, are down about 2.5 per cent from the average for the year as a whole. So there is a good chance that during 1955 the annual rate of capital investment will rise above this present level.

Effect of Tax Changes

The plans reported by the McGraw-Hill survey are preliminary plans, reported at the beginning of the period of business budgeting for 1955. As budgets are completed, new projects may bring the total expenditure that is planned even closer to this year's figure and thus make an even greater contribution to continuing prosperity.

But it also cannot be too strongly emphasized that these are plans; they are not accomplished investments. As such they have the vulnerability to changed conditions that characterize any plans.

There is some indication in the results of the McGraw-Hill check-up that one change in conditions recently made by the United States government has had an important stimulating effect on plans for business investment next year. It is a liberalization of the allowances for depreciation. Apparently encouraged by this provision, most of the smaller companies are planning to maintain or increase their purchases of new equipment next year, whereas during the past three years their expenditures have been declining. This is obviously a development that strengthens our economy.

A government insensitive to the key importance of capital investment by business, both in providing prosperity and in raising our standard of living, might easily destroy the present plans. One of the easiest and surest means to do this is excessive taxation of business profits which are the key ingredient of business investment. Whether the extraordinarily constructive program recently enacted by the federal government in the field of business taxation can be sustained remains to be seen. **If it can be sustained, the remarkably cheering plans of business for capital investment in 1955 can readily become firm foundations for a continuing prosperity.**

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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Donald C. McGraw

PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.

OFFICIAL PROPOSALS

Bids: January 25, 1955

The Mississippi River Bridge Authority Contract No. 3

INVITATION TO TENDER

The Mississippi River Bridge Authority of the State of Louisiana invites proposals for the construction of the Substructure of the River Crossing for the Greater New Orleans Bridge over the Mississippi River at New Orleans, Louisiana. Sealed proposals for the Work described will be received by The Mississippi River Bridge Authority in the office of the Authority, 422 City Hall Annex, New Orleans, Louisiana, until 10:00 A.M., Central Standard Time, January 25, 1955. Proposals will not be received after this hour. At 10:00 A.M. of the same day and date, the proposals will be publicly presented, publicly opened and publicly read in the Commission Council Chamber, City Hall.

This Contract No. 3 covers the furnishing of all materials for and the construction of the four piers, designated I, II, III and IV, supporting the river spans of a four-lane highway bridge in the City of New Orleans over the Mississippi River in the vicinity of Thalia Street in New Orleans and Bringier Street on the Algiers side, New Orleans, a willow mattress and timber fender for Pier II, and incidental construction.

A fuller description of the work to be done and of the requirements, provisions, and details thereof is given in the Contract Drawings, Contract Documents and Specifications, copies of which are on display in the office of the Authority, Room 422, City Hall Annex, New Orleans, Louisiana, and in the offices of the Engineers, Modjeski and Masters, 2400 Canal Street, New Orleans, Louisiana, and State Street Building, Harrisburg, Pennsylvania, or may be obtained from said latter office upon the deposit of Twenty Dollars ($20.00) per set. Deposit checks shall be made payable to Modjeski and Masters.

No Proposal will be received unless accompanied by a certified check satisfactory to the Authority drawn upon a National or Louisiana State Bank or Trust Company having an office or place of business in New Orleans, Louisiana, and payable to the order of The Mississippi River Bridge Authority for the sum of Five Hundred Thousand ($500,000) Dollars as security for the proper execution of the Contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the office of the Authority. Proper receipt for the deposit will be given by the Authority.

THE MISSISSIPPI RIVER BRIDGE AUTHORITY
Neville Levy, Chairman

Bids: January 18, 1955

Contract LT-160.012

WIDENING OF HELIX ROADWAY

Sealed proposals for the widening of the helix roadway from Hudson County Boulevard to Kings Bluff on the approach to the Lincoln Tunnel in New Jersey will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 18, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, December 23, 1954.

OFFICIAL PROPOSALS

Bids: January 20, 1955

New State Office Buildings Campus Site Albany, N. Y.

Separate sealed proposals covering Construction; Heating, Ventilating and Air Conditioning; Sanitary; Electric; Electric Elevator; and Moving Stairway Work for New State Office Buildings, for Department of Commerce and Department of Civil Service, Campus Site, Albany, N. Y., in accordance with Specifications Nos. 18881, 18882, 18883, 18884, 18885 and 18886 and accompanying drawings, will be received by Henry A. Cohen, Director, Bureau of Contracts and Accounts, Department of Public Works, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., on behalf of the New York State Employees' Retirement System, until 2:00 o'clock P.M., Eastern Standard Time, on Thursday, January 20, 1955, when they will be publicly opened and read.

Each proposal must be made upon the form and submitted in the envelope provided therefor and shall be accompanied by a certified check made payable to the N. Y. S. Employees' Retirement System, of 5% of the amount of the bid as a guaranty that the bidder will enter into the contract if it be awarded to him. The specification number must be written on the front of the envelope. The blank spaces in the proposal must be filled in, and no change shall be made in the phraseology of the proposal. Proposals that carry any omissions, erasures, alterations or additions may be rejected as informal. The N. Y. S. Employees' Retirement System reserves the right to reject any or all bids. Successful bidders will be required to give a bond conditioned for the faithful performance of the contract in the sum of 100% of the amount of the contract, and a separate bond for the payment of laborers and materialmen as follows: on contracts not more than $500,000.00, 100% of the amount of the contract; on contracts in excess of $500,000.00 and not more than $1,000,000.00, the bond shall be in the amount of $500,000.00; on a contract in excess of $1,000,000.00, the bond shall be 50% of the amount of the contract. Drawings and specifications may be examined free of charge at the following offices:

State Architect, 270 Broadway, New York City
State Architect, The Gov. A. E. Smith State Office Bldg., Albany, N. Y.
District Engineer, 109 N. Genesee St., Utica, N. Y.
District Engineer, 301 E. Water St., Syracuse, N. Y.
District Engineer, Barge Canal Terminal, Rochester, N. Y.
District Engineer, 65 Court St., Buffalo, N. Y.
District Engineer, 30 West Main St., Hornell, N. Y.
District Engineer, 444 Van Duzee St., Watertown, N. Y.
District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.
District Engineer, 71 Frederick St., Binghamton, N. Y.
District Engineer, Babylon, Long Island, N. Y.

Drawings and Specifications may be obtained by calling at the Bureau of Contracts and Accounts, Department of Public Works, 14th Floor, The Governor A. E. Smith State Office Bldg., Albany, N. Y., or at the State Architect's Office, 18th Floor, 270 Broadway, New York City, and by making deposit for each set as follows: Construction, $50.00; Heating, Ventilating and Air Conditioning, $40.00; Sanitary, $30.00; Electric, $40.00; Electric Elevators, $20.00; Moving Stairways, $30.00; or by mailing such deposit to the Albany address. Checks should be made payable to the State Department of Public Works. Proposal blanks and enevlopes will be furnished without charge.

DATED: 12/8/54
MFM/N

Bids: February 14, 1955

Construction of Reinforced Concrete Bridge

IRELAND
WEXFORD COUNTY COUNCIL

Wexford County Council has invited tenders for the construction of a new reinforced concrete bridge over the River Slaney at Wexford. The bridge is approximately 35' wide and 1,883' long.

Details may be had on application to Mr. W. J. L. O'Connell, Consulting Engineer, 9 South Mall, Cork, Ireland.

Latest date for receiving tenders is 12 o'clock noon on Monday, 14th February, 1955.

OFFICIAL PROPOSALS

Bids: January 5, 1955

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a. m., Eastern Standard Time, the 5th day of January 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract.

For the construction of structures and the grading, drainage and paving of the Turnpike Section 36-D, part of the Northeastern Extension of the Pennsylvania Turnpike in Washington Township, Lehigh County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point approximately 1,915 southwest of the center line of existing Legislative Route 39116 at Turnpike station 1156+00 in Washington Township, Lehigh County; thence in a northwesterly direction 18,970 lineal feet to Turnpike station 1345+70 at a point approximately 3,023 lineal feet northwest of the center line of Legislative Route 39119 in Washington Township, Lehigh County, a distance of approximately 3.59 miles.

The approximate quantities of the principal items are as follows:

Class I Excavation	1,412,986 cubic yards
Class II Excavation	17,836 cubic yards
Class 2A Excavation	2,932 cubic yards
Special Subgrade	152,861 square yards
Reinforced Concrete Pavement	96,207 square yards
Class A Concrete	2,831 cubic yards
Class B Concrete	4,032 cubic yards
Plain steel Bars	676,946 pounds
Fabricated Structural Steel	1,802,254 pounds
Median Divider	17,269 lineal feet

Copies of plans, specifications and other contract documents, including cross-sections, are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on December 17, 1954. Plans, specifications, cross-sections and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50) dollars per set.

Plans and contract documents, for this section exclusive of cross-sections and specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
10 December 1954

U. S. Government

Sealed bids in triplicate for construction of New Chapel, St. Elizabeth's Hospital, Washington, D. C., will be received until 2:00 P. M. EST on Jan. 13, 1955 in Rm. 7100 Regional Office Bldg., General Services Administration, 7th & D Sts., S. W., Washington, D. C., and then publicly opened. Bidding material may be obtained from Public Buildings Service, Rm. 1304 General Services Bldg., 19th & F Sts., N. W., Washington, D. C., Executive 3-4900, Extn. 2397. Three sets will be supplied without charge to general contractors interested in bidding on the complete project, all of which must be returned. Not more than two additional sets may be obtained by depositing $25.00 per set.

(Continued on following page)

OFFICIAL PROPOSALS

Bids: January 18, 1955

Sewage Treatment Project of The Municipal Authority of the City of McKeesport

McKeesport, Allegheny County, Pennsylvania

Sealed proposals will be received at the office of THE MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT, located at 520 Walnut Street (Room 203), McKeesport, Pennsylvania, until 10:00 A.M., E.S.T., January 18, 1955, and will be publicly opened and read shortly thereafter in the City of McKeesport Council Chamber, on the sixth floor of the Peoples Bank Building, Fifth and Walnut Streets, McKeesport, Pennsylvania, for furnishing all necessary labor, materials, and equipment, and performing all work for the Contracts noted herein.

Separate poropsals will be received upon seven (7) parts of the project as hereinafter indicated. Each proposal shall be accompanied by a certified check or bid bond in amount not less than ten (10) per cent of the bid total, all in accordance with the provisions contained in the Specifications.

Copies of the Contract Documents, including Drawings and Specifications will be on file for inspection purposes at the office of Gannett Fleming Corddry and Carpenter, Inc., 6218 Penn Avenue, Pittsburgh, Pennsylvania; also at the office of The Municipal Authority of the City of McKeesport, 520 Walnut Street (Room 203), McKeesport, Pennsylvania; and at the office of Gannett Fleming Corddry & Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania.

Copies of the Contract Documents, including Drawings and Specifications, not to exceed two (2) sets of any particular Contract to a prospective bidder, may be obtained only from that office of Gannett Fleming Corddry and Carpenter, Inc., that is located at 6218 Penn Avenue, Pittsburgh, Pennsylvania, (P. O. Box 5073, Pittsburgh 6, Pennsylvania), upon deposit of the following stated amounts for each set:

Contract One—CONSTRUCTION OF INTRCEPTING SEWERS, SEWAGE REGULATORS, FORCE MAINS, SIPHONS AND APPURTENANCES.	$50.00
(Part A): Construction of the Upper Monongahela River Interceptor, Sewage Regulators, and Appurtenances.	
(Part B): Construction of the Lower Monongahela River Interceptor, Sewage Regulators, Force Mains, Siphon, and Appurtenances.	
(Part C): Construction of the Youghiogheny River Interceptor, Sewage Regulators, Force Mains, Siphon, and Appurtenances.	
Contract Two—GENERAL CONSTRUCTION OF SEWAGE TREATMENT PLANT, OUTFALL SEWER, ROADS, PUMPING STATIONS AND APPURTENANCES.	$50.00
Contract Three—PLUMBING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT AND PUMPING STATIONS.	$25.00
Contract Four—HEATING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT AND PUMPING STATIONS.	$25.00
Contract Five—ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE TREATMENT PLANT AND PUMPING STATIONS.	$25.00

Full refund will be made to actual prime bidders only for return of one of each set in good condition within ten (10) calendar days after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty (50) per cent of deposit.

NOTE: Bidder may submit proposals on any or all of the three (3) parts of Contract One as separate Contracts, and/or he may submit a proposal on all three (3) parts combined as one Contract.

THE MUNICIPAL AUTHORITY OF THE CITY OF McKEESPORT
520 Walnut Street (Room 203)
McKeesport, Pennsylvania
Gannett Fleming Corddry &
Carpenter, Inc., Engineers,
6218 Penn Avenue
P. O. Box 5073
Pittsburgh 6, Pennsylvania

OFFICIAL PROPOSALS

Bids: January 12, 1955

Indiana Toll Road Commission 309 W. Washington Street Old Trails Building Indianapolis, Indiana

NOTICE TO BIDDERS
Contract No. C-11/12

Sealed proposals will be received by the Indiana Toll Road Commission at or before 11:00 A.M., Central Standard Time, January 12, 1955, for the performance of the contract enumerated above.

The grading, drainage, structures and paving of approximately 2.5 miles in Construction Section C-11/12 of the Indiana East-West Toll Road beginning at a point about 1,130 feet east of Clay Street at Toll Road Centerline Station 1187+00 in Lake County and extending eastwardly to a point adjacent to Burns Ditch at Toll Road Centerline Station 1321+26 in Lake County, Indiana. The approximate quantities of the major items of construction are as follows:

Common Excavation	395,000 Cubic Yards
Peat Excavation	114,000 Cubic Yards
Borrow	210,000 Cubic Yards
10" Reinforced Concrete Pavement	68,600 Square Yards
Culvert Pipes and Underdrains	4,600 Lineal Feet
Cast-in-Place Concrete Piling	14,000 Lineal Feet
Concrete for Structures	4,500 Cubic Yards
Reinforcing Steel	480,000 Pounds
Fabricated Structural Steel	1,260,000 Pounds

Copies of the Plans, Specifications and Proposal Forms for said Contract are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road	$ 5.00
Plans, Special Provisions and Proposal Forms, per set, per Construction Section	$25.00
Informational Drawings	
Cross Sections, per set, per Construction Section	$25.00
Soil Plan and Profiles, per set, per Construction Section	$ 5.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) percent of the total price bid for the Contract. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 11:00 A.M., Central Standard Time, January 12, 1955, in the oilices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of the above Contract, if any award be made, will be to the Bidder whose Proposal is lowest and best for the performance of the work, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger
Chairman

Charles W. Keating
Secretary-Treasurer

Bids: January 17, 1955

Construction of Extension to Sanitary Sewer

NOTICE TO CONTRACTORS
CONSTRUCTION OF EXTENSION TO LEY CREEK SANITARY SEWER HEADSONS CREEK TO THOMPSON ROAD
CONTRACT NO. 2
LEY CREEK SANITARY DISTRICT

Sealed bids for the construction of Extension to Ley Creek Sanitary Sewer, Headsons Creek to Thompson Road, Contract No. 2, will be received by the County Purchasing Agent for the Onondaga Public Works Commission, at the office of the Purchasing Agent, Room 107, County Court House, Syracuse 2, New York, until 2:00 P.M. Eastern Standard Time, January 17, 1955, and there at said office publicly opened and read aloud.

This contract includes the construction of approximately 5,000 lineal feet of 24 and 27-inch diameter sanitary sewers and appurtenances including one (1) highway crossing of the Court Street Road.

Information for Bidders and all Contract Documents may be examined at said office and copies of the same obtained upon payment of $10.00 for each set. Any bidder submitting a sealed bid to the Purchasing Agent, Onondaga County, upon returning such set in good condition within thirty days of the date of receiving bids, will be refunded his payment, and any party who does not submit a sealed bid to the County Purchasing Agent shall be entitled to a refund of $5.00 upon return of the contract documents.

Copies of the above described Contract Documents may be examined at no expense at the above office of the Purchasing Agent and at the office of the Onondaga Public Works Commission, Room 405, County Court House.

The right is reserved to waive any informalities in the bids and to reject any or all bids.

COUNTY OF ONONDAGA, NEW YORK
By: ROBERT W. SOLLINGER
Purchasing Agent

Dated: December 20, 1954

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4311) will be received at Kennewick, Washington, until January 25, 1955, for furnishing labor and materials for earthwork, canal lining, and structures, Main Canal, Station 114/70 to Station 766+50 and Lateral Turnout Deliveries Station 41+18.77 to Station 766+50, Kennewick Division, Yakima Project. Location: near Prosser, Washington, in Benton County. Principal items are: 874,800 c.y. excavation, common, for canal, drainage channels and ditches, and structures; 150,000 c.y. compacting embankments; 4,115 c.y. concrete in structures and canal lining; 6,170 barrels furnishing and handling cement; 6,140 lin. ft. furnishing and laying 12-inch diameter HC50 concrete pressure pipe; and other work. Completion time 420 days. For particulars, address Bureau of Reclamation, Kennewick, Washington; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4312), will be received at Ephrata, Washington, until February 1, 1955, for furnishing labor and materials for earthwork and structures, lateral W-20, Station 428+50 to Station 792+30, West Canal Laterals, Block 89, Columbia Basin Project. Location near Ephrata, Washington, in Grant County. Principal items are 546,500 cu. yds. excavation for lateral, from borrow, and for structures; 960 tons furnishing and applying asphalt for membrane lining; 330 cu. yds. concrete in structures; 490 barrels furnishing and handling cement; 670 lin. ft. furnishing and laying 15-, 18-, 24-, 36-, 42-, and 48-inch concrete culvert pipe; and other work. Completion time 500 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

Department of Commerce, Bureau of Public Roads, December 14, 1954. SEALED BIDS will be received at the office of the Bureau of Public Roads, 115 Nevada Street, Hot Springs, Arkansas, until 11:00 a.m., C.S.T., JANUARY 11, 1955, for the construction of Arkansas Forest Highway Project No. B-7-A2,B, Part 3, Newton County, Arkansas. Grading, Draining, Base Course, Bituminous Surfacing and other work on the Russellville-Jasper Road from near Cowell to the north Forest Boundary. Length 7.992 miles. The approximate quantities of the more important items are 284,000 cu. yd. Excavation, 35,000 cu. yd. Borrow for Topping, 46,000 tons Crushed Stone or Crushed Gravel Base Course, 5,400 tons Aggregate for Surfacing, 97,000 gal. Asphalt and 3,616 lin. ft. Concrete Culvert Pipe. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the Bureau of Public Roads at either 115 Nevada Street, Hot Springs, Arkansas, or at 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineer.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)

$1.80 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.80 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. 36 for January 6th issue closing December 23rd

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Needed

STRUCTURAL STEEL DETAILERS
STRUCTURAL STEEL CHECKERS

Must be experienced Detailers and Checkers in Structural Steel Fabrication

For

PERMANENT EMPLOYMENT

Top Pay, Paid Vacation, Paid Holidays, Group Insurance Plan, Etc.

Openings in Orange and Houston, Texas

Apply Personnel Department

CONSOLIDATED WESTERN STEEL DIVISION

Orange, Texas

Housing Available in Orange, Texas:

One Bedroom Unit.....$40 Mo.
Two Bedroom Unit.....$43 Mo.
Three Bedroom Unit.....$46 Mo.

All utilities, kitchen range, refrigerator and space heater included in above rentals.

YOUNG AGGRESSIVE SALES ENGINEER

With concrete pipe manufacturing background. This is an excellent opportunity for top-notch man possessing engineering experience and sales ability. Must have the technical knowledge to negotiate with consulting engineers and sell them on the use of a proven product. Territory is the South and Southeast. Reply fully, giving age, experience, education and salary requirements, to

P-4737, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALES ENGINEER TRAINEES

Men, if you have civil or architectural engineering degrees or equivalent training and experience in building construction, here is a stimulating challenge to utilize this knowledge in a sales capacity. Because we are expanding our MILCOR line of engineered metal products for the building industry, there are additional openings for qualified candidates in our sales training program. Excellent outlook for advancement. Salary open.

INLAND STEEL PRODUCTS COMPANY
4101 West Burnham St.
Milwaukee 1, Wisc.

PROJECT MANAGER

For Proposed Mediterranean Work
Two Years Service

Should have prior off-shore administrative experience with U. S. Corps of Engineer Procedure

Project Scope: Heavy grading, underground & surface utilities, pavements, permanent military housing & buildings all types—electric installations—industrial piping.

P4923, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

REGISTERED CIVIL Engineer (Michigan) for municipal engineering office. Desire a young man with a general background. Work primarily in street and sewer design. Future bright for capable man. State experience, availability and salary requirements. Write to Civil Service Office, City Hall, Dearborn.

CONCRETE PIPE Plant Superintendent with pressure and prestressed pipe experience capable of operating a large modern concrete pipe plant located in the South. Excellent opportunity for a top level production manager. Write fully, giving age, past experience, education, availability, salary requirements to P-4778, Engineering News-Record.

SURVEY PARTY Chief: Must be fully qualified to take charge of survey party on highway work. Write or call Garden 8-6695 for interview. Charles N. Savery Co., Cotuit, Cape Cod, Mass.

HEAVY CONSTRUCTION Engineer to design construction facilities and assist estimator. Applicant must be graduate engineer, preferably about 35 years old, with five years field experience on bridge or foundation work and five years as draftsman and designer on work of magnitude. Work in Pittsburgh office of nationally known, progressive contractor that offers responsibility and advancement. P-4867, Engineering News-Record.

STRUCTURAL ENGINEER for design and estimating of buildings and bridges who has had design experience with steel fabricator. Also need checkers. The Midwest Steel & Iron Works Co., P.O. Box 5384, Terminal Annex Station, Denver, Colorado.

EXPERIENCED BUILDING Construction Superintendent for long established expanding Eastern Pennsylvania firm. Excellent permanent opportunity. Salary plus bonus. State experience, personal data and minimum base salary. P-4862, Engineering News-Record.

MECHANICAL ENGINEER—Reg. P.E. 5 years minimum experience in design and specifications; Heating, Plumbing and Air Conditioning. Good Salary. Excellent future for qualified man 30-35. Permanent position. Interview arranged on basis of letter stating qualifications and salary desired. P-4861, Engineering News-Record.

WANTED EXPERIENCED Estimator for small structural steel fabricator. Reply with complete resume and salary expected. Berger Steel Co., Lafayette, Ind.

CHIEF ENGINEER with well established company specializing in design and construction of modern cement manufacturing plants. Exceptional opportunity for right party with good background in this field. Location middle West. P-4833, Engineering News-Record.

(Continued on the following page)

ENGINEERS

STRUCTURAL STEEL SALES PROMOTION

To meet requirements of an expanded program several engineers are needed immediately for technical and promotional work with customers of the structural steel fabricating industry. These are permanent positions with a national trade and technical organization.

Positions are in field offices in central and midwestern states. Some travel required. Excellent opportunities for advancement and for showing initiative and judgment.

Applicants should have B.S. in Civil Engineering, preferably with a major in structural. Experience in design and construction in structural steel, and promotional contact with architects, engineers and contractors desirable.

Field engineers—Under 30 years old
District engineers—30-45 years. Salaries open, depending on experience. Insurance and retirement plans available.

Send complete resume, recent photograph if available and salary requirements by mail to:

AMERICAN INSTITUTE OF STEEL CONSTRUCTION
101 Park Avenue, New York 17, New York

WANTED

STRUCTURAL ENGINEER

With 5-10 years experience in steel and concrete design to work on design of pulp mill construction. Permanent position. Write: R. J. Kutchera, Chief Engineer

RAYONIER INCORPORATED
Hoquiam, Washington

GENERAL MANAGER

for small, conservative corporation operating throughout the Southeast in the production of concrete pipe and sand and gravel. Must be capable of assuming full responsibility. Reply fully, giving age, experience, education and salary requirements to

P-4738, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALES MANAGER

Sales manager required by one of nation's most outstanding manufacturers of Aluminum Windows, Sliding Glass Doors, Jalousies, etc., for its Aluminum Window Division. Successful applicant should have comprehensive background in window engineering, window distribution and window merchandising. Excellent remuneration. Extensive traveling required. Headquarters in Miami, Florida. Send full details to

P-4806, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

Highways Development Engineers

For conducting laboratory and field investigations on highway materials and pavements. One an experienced engineer preferably under 40 having at least 5 years research and development experience in concrete and soils including planning of investigations and report writing. Experience in measuring minute strains and deflections desirable. And one a recent graduate with distinct interest in research and development having training in soils or having one or two years experience in highways, preferably on subgrades or base courses. Salaries open, suburban Chicago location.

P4930, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

Quantity Estimators

Experienced in Water Filtration and Sewerage Plant type work.
Several years of field construction experience

P4931, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

SALESMAN

Window Salesman, with good architectural or engineering background required by one of nation's most prominent manufacturers of Aluminum Awning, Projected, etc., windows. Excellent remuneration for man with good window engineering experience. Must relocate. Send full details to

P-4907, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

REPRESENTATIVES WANTED

Importer of established line of engineer and surveyor transits, levels, planimeters seeks representatives nationally. High quality and prices considerably below competition make these instruments highly saleable. Write:

UMECO OPTICAL DIVISION,
465 California, San Francisco 4, Calif.

POSITIONS VACANT

(Continued from preceding page)

WANTED: A registered municipal engineer with executive ability to manage the public works department in a small but growing town of 9000. Experience with water and sewage systems is a necessity. Write stating full particulars about yourself. The Borough Authority, Middletown, Pennsylvania.

PURCHASING AGENT. Requires heavy experience in purchase of reinforced concrete, structural steel and construction equipment, preferably for the oil and chemical industries. Engineering training desirable but not essential. Please write complete details in confidence, including initial salary desired. Advt. box #550, Room 1201, 330 West 41 St. New York 36, N. Y.

DRAFTSMAN, STRUCTURAL detailer thoroughly experienced in bridge and building work. This is a permanent job with a medium sized old established fabricator. All employee benefits, paid vacation, insurance, etc. Reply by letter stating experience, etc., to St. Joseph Structural Steel Co., Box 68, Station A, St. Joseph, Mo.

TOP FLIGHT chief engineer largest heavy building construction firm State of New Jersey. Must have sufficient background. Submit complete resume. P-4894, Engineering News-Record.

EXECUTIVE TYPE Industrial construction engineer. Experienced all phases of industrial design to take over entire department for largest heavy building construction firm. State of New Jersey. Submit complete resume. P-4895, Engineering News-Record.

WANTED: YOUNG engineer to do design and layout work for precast products plant in Central Pa., now entering pre-stress field. Must be ambitious, possess business ability, and desire to keep abreast of present day precast and prestress designs. Reply P-4915, Engineering News-Record.

BRIDGE DESIGNERS wanted by long established consulting engineer. Unusual opportunities for experienced men. Prompt promotion for younger men. Give education, experience, references and salary expected. P-4912, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALES TRAINER—Nationally-known company engaged in the manufacture and distribution of fabricated metal products has opening in New York City office for sales trainee with civil engineering degree. SW-4695, Engineering News-Record.

EMPLOYMENT AGENCIES

WANTED ENGINEERS, Designers, Draftsmen-Structural, Architectural, M. E., C.E., E.E., and Ind., also Teachers and Chemists, Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

OFFICE MANAGER familiar all phases construction contracting business. Many years experience large projects Branch Offices Latin America, Speaks, reads, writes Spanish. Available immediately. PW-4525, Engineering News-Record.

CONSTRUCTION EXECUTIVE and Superintendent now in the midwest desires permanent location in the Pacific Northwest with contractor engaged in Industrial, Commercial, Municipal, or heavy construction. All replies answered. Address PW-4743, Engineering News-Record, 520 North Michigan Ave., Chicago, Illinois.

CIVIL ENGINEER MSCE, 31, 8 years design and construction experience. PW-4792, Engineering News-Record.

CONSTRUCTION EXECUTIVE, available as project manager, on large operation, chief estimator for large organization or in other executive position where scope warrants employment of top man, thoroughly experienced on all types of construction and in every phase of general contracting. PW-4807, Engineering News-Record.

CONSTRUCTION ENGINEER—Graduate C.E. with Master's degree in structures. Varied experience in field and as estimator. Will consider any opportunity in heavy construction or sales. Will relocate. Age 30. PW-4859, Engineering News-Record.

GRADUATE ENGINEER. 41 Licensed NYS major experience plumbing engineering; secondary sanitary, public health. PW-4870, Engineering News-Record.

CIVIL ENGINEER, graduate, 31 years, single, 7 years experience as computer-surveyor, estimator, coordinator and office engineer. Desires position with contractor-engineering firm. Upper middle-west or foreign locations. PW-4881, Engineering News-Record.

YOUNG EXECUTIVE engineer experienced in design and execution of pre-stressed concrete structures wants better position. PW-4891, Engineering News-Record.

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Ambursen Dam Co., Inc. 58
American Air Compressor Corp. 57
American Institute of Steel Construction 55
Atkinson Co., Guy F. 58, 59

Bement Equipment Co., H. D. 58
Branigan & Co., H. J. 59

Campanella & Cardi Construction Co. 59
Charter Oak Construction Co., Inc. 59
Columbia Construction Co., Inc. 58
Consolidated Western Steel Div. 55
Contractors Machinery Co. 58, 59

Dallavia Co., The 56
Davidson Pipe Co., Inc. 58
Deatherage & Son, G. E. 56
Dougherty Co., A. L. 57, 58, 59

Drachman Steel Corp., Hy. 59
Dyer Co., Inc., W. H. 57

Forsythe Equipment Co., Inc. 58, 59
Foster Co., L. B. 59
Frank, M. K. 57
Frantz Equipment Co. 58
Frazier-Davis Construction Corp. 57, 58, 59

Gillis & Co. 57
Globe Pipe & Fitting Co. 58
Greenheart Inc. 59

Havre De Grace Shipyard, Inc., The 59

Inland Steel Products Co. 55

Jenson Construction Co. 56
Judge & Co., Inc., Frank M. 57

McCarrick Brothers 57
Miami, City of 56
Midwest Steel Corp. 57
Mississippi Valley Equipment Corp. 59

National Business Exchange 59

O'Neill, A. J. 57

Philadelphia Transformer Co. 58

Rayonier Inc. 55
Sherman Transfer Co., Roger 57

Tagco Inc. 58
Tamblyn System 56
Tractor & Equipment Co. 58

Umeco Optical 56

Williams Construction Co. 56, 58
Wilson Engineering Co. 56

ADVERTISERS IN THIS ISSUE

American Surety Co. 27
Barber-Greene Co. 45
Bethlehem Steel Co. 1
Blood Brothers Machine Co. 39
Broderick & Bascom Rope Co.....4th Cover
Cement Gun Company 8
Connors Steel Div., H. K. Porter Co..... 8
Eimco Corp., The 4
Faber-Castell Pencil Co., A. W. 25
General Electric Company .....2nd Cover
Gilson Screen Company 33
Goodrich Company, The B. F..... 5
Griffin Wellpoint Corporation..... 45
Gunite Concrete & Construction Co. 39
Gunite Construction Corp. 41
Irvington Form & Tank Corp. 10
Longyear Co. 27
Macomber, Inc. 22
McKiernan-Terry Corp. 27
Page Engineering Co. 39
Patent Scaffolding Co..... 48
Raymond Concrete Pile Co. .....3rd Cover
Sprague & Henwood, Inc. 41
Timber Structures, Inc..... 48
Truscon Steel Company 3
Umeco Optical Div. 25
U. S. Rubber Co. 9
Viber Co. 7
Vickers, Inc. 14
Waukesha Motor Co. 6
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp. 12
Wild Heerbrugg Instr., Inc. 2

Professional services.....60, 61, 62

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(Classified Advertising)

H. E. Hilty, Mgr.

Employment 55, 56
Educational 56
Notices
Proposal 52, 53, 54
Equipment
(For Rent, Sales, Wanted)..... 56
Advertisers Index 62

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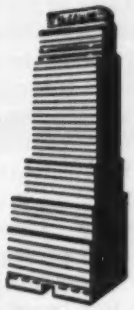

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EDITORIALS

Toward Greater Use of Modular Sizes

ANOTHER FINE JOB has been done by the Building Research Advisory Board in arranging a conference on a subject of vital interest to the construction industry. BRAB brought architects and contractors together on Dec. 9 to compare experiences with modular coordination (ENR Dec. 16, p. 24). Without exception, the conferees enthusiastically endorsed this technique. As a result, progress toward universal adoption of modular coordination is certain to continue. However, more rapid progress could have been insured if the conference had done more to promote conversion of building parts to modular sizes than merely praising modular design.

Modular coordination requires that all building components be sized so that they can be assembled without the necessity of cutting them on the job to make them fit together. For example, modular masonry would not have to be cut at door and window openings if the door and window frames have modular dimensions. Past research has indicated the actual sizes that most building components should have for modular coordination. But only a few types of building parts are now being produced in modular sizes.

At the BRAB conference, the delay in adoption of this time and money-saving technique was attributed to prejudices of architects and the slowness of building materials manufacturers in converting to modular sizes. However, it is more likely that architects have held back because modular materials were not easily obtainable than because of prejudice. If modular materials were listed as standard items in catalogs, there is no doubt that architects would specify them, because of the many advantages of modular materials and equipment —and particularly since modular design reduces drafting and design costs.

The major barrier to more rapid progress with modular coordination at present, therefore, is insufficient production of modular building components of all types. Too many manufacturers—particularly among the brick, structural tile, door and window producers—have held back too long. In their own best interest, as well as the best interests of the building industry as a whole, they should be persuaded to convert to modular sizes as soon as possible.

One way to speed conversion might be for the Building Research Advisory Board to sponsor a second conference on modular construction, at which large producers whose products do not now conform to modular dimensions would be asked to participate in a panel discussion on how to speed up conversion to modular sizes. Out of such a conference might come agreement on a cut-off date after which the large producers would standardize only on modular products.

If the large manufacturers will agree on such a cut-off date, the smaller ones will be quick to fall in line. Then building designers will have no choice but to specify modular materials for structures to be built after that date. As a result, the time would come very rapidly when non-modular construction would be found no more frequently than custom-built automobiles.

Engineers in Politics

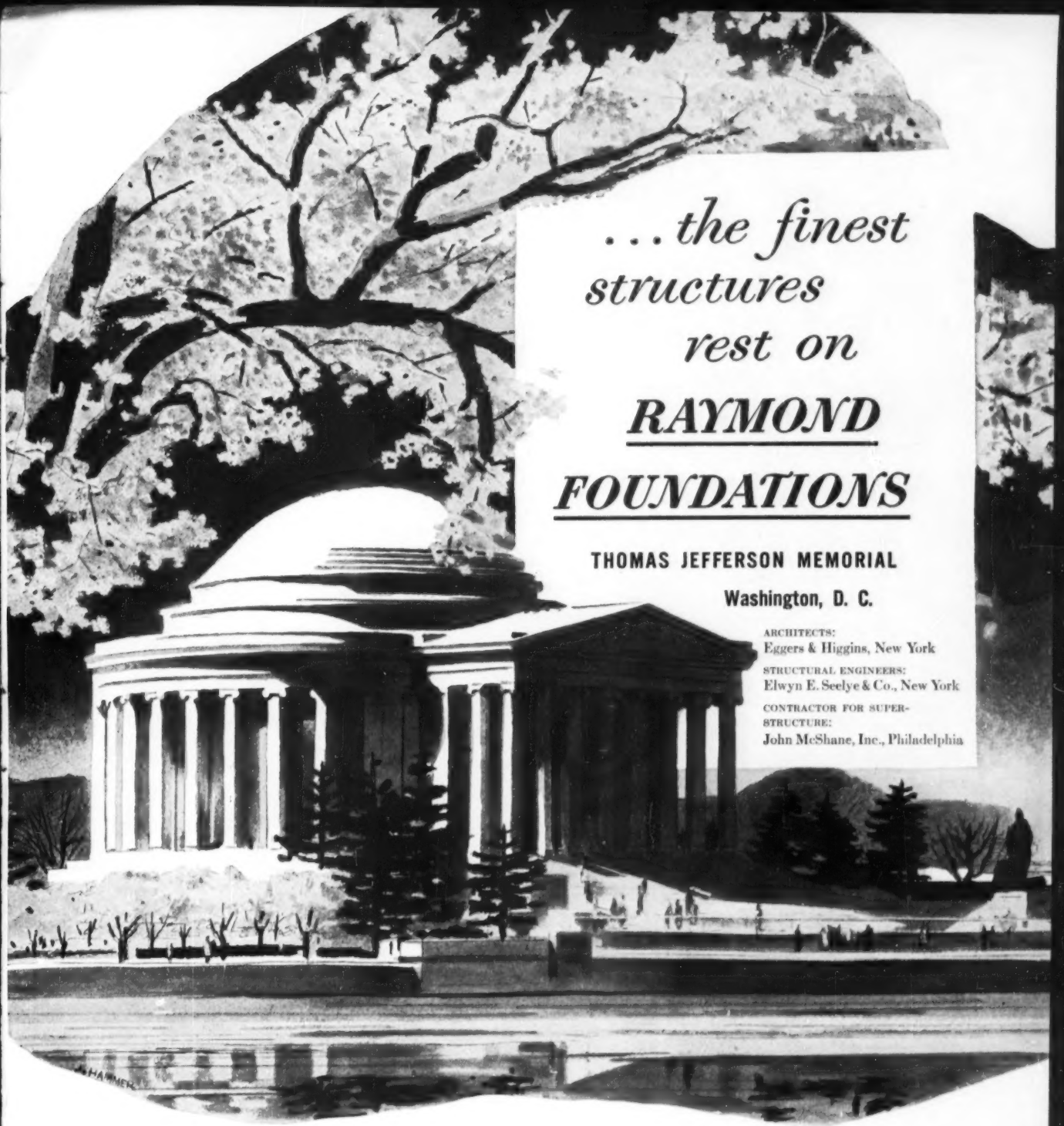
GOVERNMENT would benefit by having more engineers in legislatures and fewer lawyers. That was the theme of Thomas Desmond's recent talk to the American Society of Mechanical Engineers when he delivered the Roy V. Wright lecture at the society's annual meeting in New York. Himself an engineer who has just been re-elected to start his 25th year in the New York State Senate following 21 years of the practice of engineering, Senator Desmond spoke with more authority than most of those who have made similar proposals.

Lawyers, Senator Desmond said, are trained to look backward for precedent; engineers are forward-looking. "A good engineer is constantly on the alert for new methods to solve new problems. The engineering type of mind is so much needed in solving current problems that engineers must not shirk their civic duties."

Few engineers will question the desirability of what Senator Desmond has proposed. Nevertheless, the fact that few engineers have gone into politics seems to indicate that their failure to enter that field of service is due to something other than lack of civic responsibility. Is it not possible that temperament is the cause, a dislike or disapproval of compromise on the part of most engineers? Political life is a series of compromises, giving and taking to get the best practical solution, which may be far from what would be dictated by a detached engineering approach.

If the explanation is one of temperament, how can it be overcome? A partial answer may be found in a recommendation made to the young graduates of MIT by Clarence B. Randall, chairman of the Board of the Inland Steel Co., which is quoted with approval by Senator Desmond. "Your job at the beginning is at the community level. That means helping with the schools to which your children go, it means the church, it means the community services, it means entering into political life in the best sense, joining a political party, knowing what political creed you espouse and furthering it in the great American faith."

Gaining experience in dealing with people by active participation in community activities is a good way for a young engineer to learn that many problems cannot be solved with a slide rule. It will make him a better citizen and will give him a good grounding for more useful service in a political party. And, significantly, it should make him a better engineer. Certainly it will make him a better executive when the opportunity for advancement to an executive position comes.



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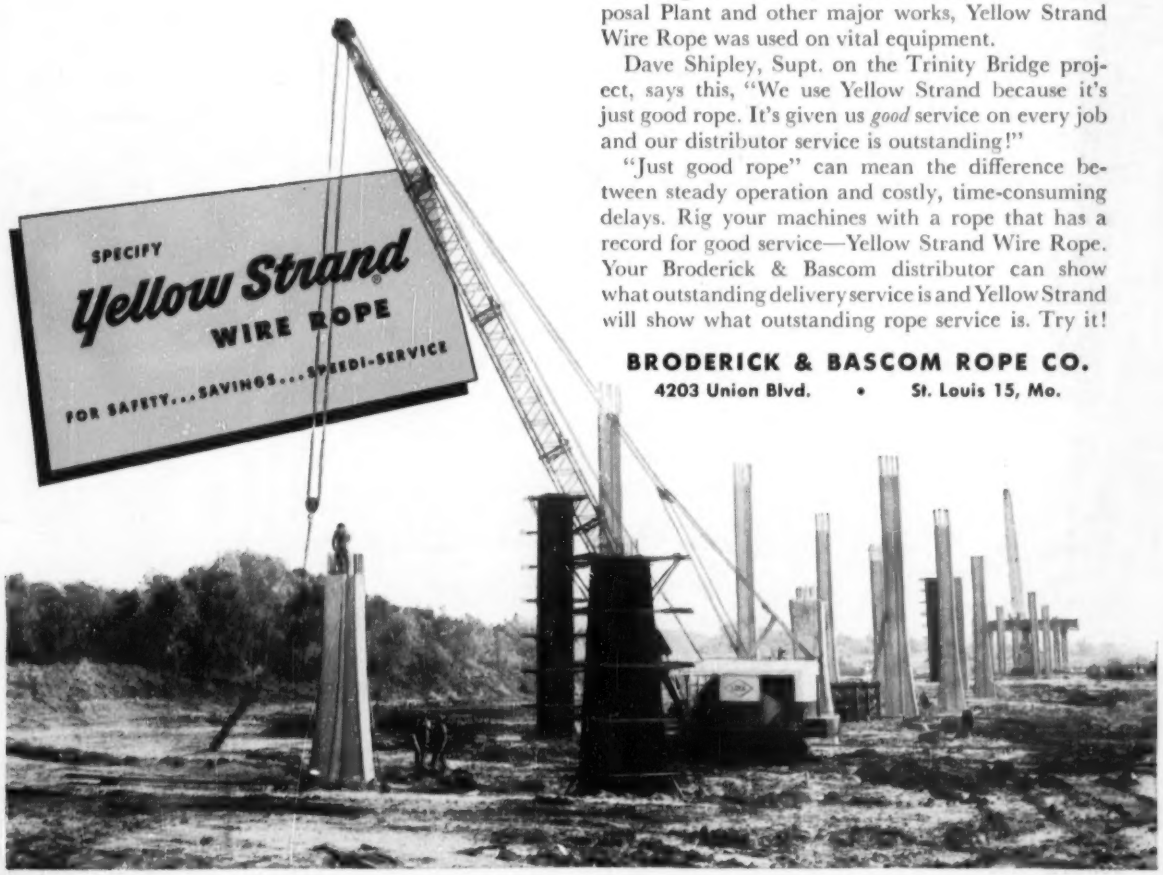
BRIDGING A GAP in the Port Arthur Freeway

Working *west of Wallisville, Texas, this crane fleet of Elmer C. Gardner, Inc., Houston, is completing the substructure for the new $1½ million Trinity River Bridge on the Port Arthur Freeway. The fleet is rigged with Yellow Strand Wire Rope for trouble-free service.*



ELMER C. GARDNER, INC., SPEEDS TRINITY RIVER BRIDGE CONSTRUCTION

The rapid growth of the Houston, Texas, area has forced an emergency road-and-highway program to meet needs of industry and citizens. Several state plans for years ahead are being put to work immediately.

One phase of these hurried plans is a modern freeway to carry the traffic load between Houston and Port Arthur. Preliminary contracts for many of the road's sections have already been let.

Elmer C. Gardner, Inc., Houston contractors, won the contract for the bridge to span the Trinity River. The work has a 2-year completion date, but the company is speeding the work and expects to beat the date by a wide margin.

The 4-lane bridge is a modern, reinforced concrete structure 3,000 feet long. The span arches to a height of 75 feet above the water to allow use of the navigable river. Cost of the bridge will be approximately $1½ million.

The Gardner company is presently working on the substructure of the bridge. Seven cranes, a pile driver, winches, earthmoving equipment and men are working steadily to speed the construction. *And to keep the machines working steadily, Elmer C. Gardner, Inc., uses Yellow Strand Wire Rope from the B & B Houston factory.*

For three years, while the company was building the San Jacinto Dam, LaPorte Road, Houston Disposal Plant and other major works, Yellow Strand Wire Rope was used on vital equipment.

Dave Shipley, Supt. on the Trinity Bridge project, says this, "We use Yellow Strand because it's just good rope. It's given us *good* service on every job and our distributor service is outstanding!"

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